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The Major Thrust Project in Elementary School Thinking

Floyd G. Robinson
OISE Northeastern Centre, North Bay

The following article describes one of OISE's most successful projects—the people involved, the many interrelated studies and activities, and the current outcomes.

This is an account, in point form essentially, of the history, domain, and effects of the Major Thrust in Elementary School Thinking. It is written for those who might have reason to want an overview of the somewhat puzzling phenomenon that this project represents. Among those interested will be potential users of the Thinking Materials Resource Centre, itself one of the tangible outputs of the project.

A Brief History of the Project

This section will have more coherence if it is subdivided into the following four phases: (1) activities prior to the project; (2) the growth of the primary writing group; (3) the development of 'second-generation' project personnel; and (4) current applications.

Beginnings

Since the early sixties there had been some interaction between a small number of mathematics educators who had done doctoral work in the area of problem-solving. H. H. Russell[1] (who would later become coordinator of the Major Thrust in Elementary School Thinking) and myself carried this interest into OISE when it was founded in 1965, and soon began to engage both graduate students (e.g., Shmuel Avital) and new staff members (Glen T. Evans) in the consideration of possible research projects.[2]

This initial focus on mathematics problem-solving broadened considerably when David Brison and I moved to the OISE Niagara Centre (September 1969) and began to interact with local school systems. Here we found—an apparent outgrowth of the Hall-Dennis report—great enthusiasm for student activities variously described as 'research,' 'discovery,' and 'inquiry.' Unfortunately, the high motivation in evidence in such activity was counterbalanced, in our opinion, by a rather cavalier disregard for both process and content. This observation was the stimulus for the creation of the Inquiry Training Project, which centered around a set of problem-solving models or plans intended to give intellectual discipline and direction to student investigations. The initial target for the Inquiry program was the Port Colborne school system, whose superintendent (John Tickle) became a full-fledged participant in the project.[3]

In 1970/71 the initial Inquiry Training group joined forces with a team headed by Carl Bereiter in a joint project centered at Christ the King School in St. Catharines. Included in the Bereiter group were such accomplished curriculum developers as Valerie Anderson and the late Anne Hughes, as well as a number of outstanding graduate students; two of the latter, W. R. Kenzie and Robbie Case, went on to make significant contributions of their own to the general area encompassed by the Major Thrust. At the same time, Henry G. Hedges joined Niagara Centre (and the project) and brought with him a broad background of curriculum invention in the science field. In addition, the Niagara Centre group was strengthened by the presence of first-rate research assistants and collaborators, of whom Cathy Fry, Jane Hill, Paul Robinson, Allan Shynal, Edra Thompson, and Halia Zamkow readily come to mind.

It was during this year that the concept of a major thrust in elementary school thinking was put forward, with Bereiter, Evans (who had been working on mathematics problem-solving in Toronto), and myself as the principal investigators.

This was a period of intense intellectual fermentation and voluminous paper production, in which the boundaries of the program became more or less clearly defined. It was also, in retrospect, a period of enormous self-confidence during which project staff took on all the perennial stumbling blocks of other well-intentioned 'thinking' programs, including problem-solving, critical thinking, and expository writing.

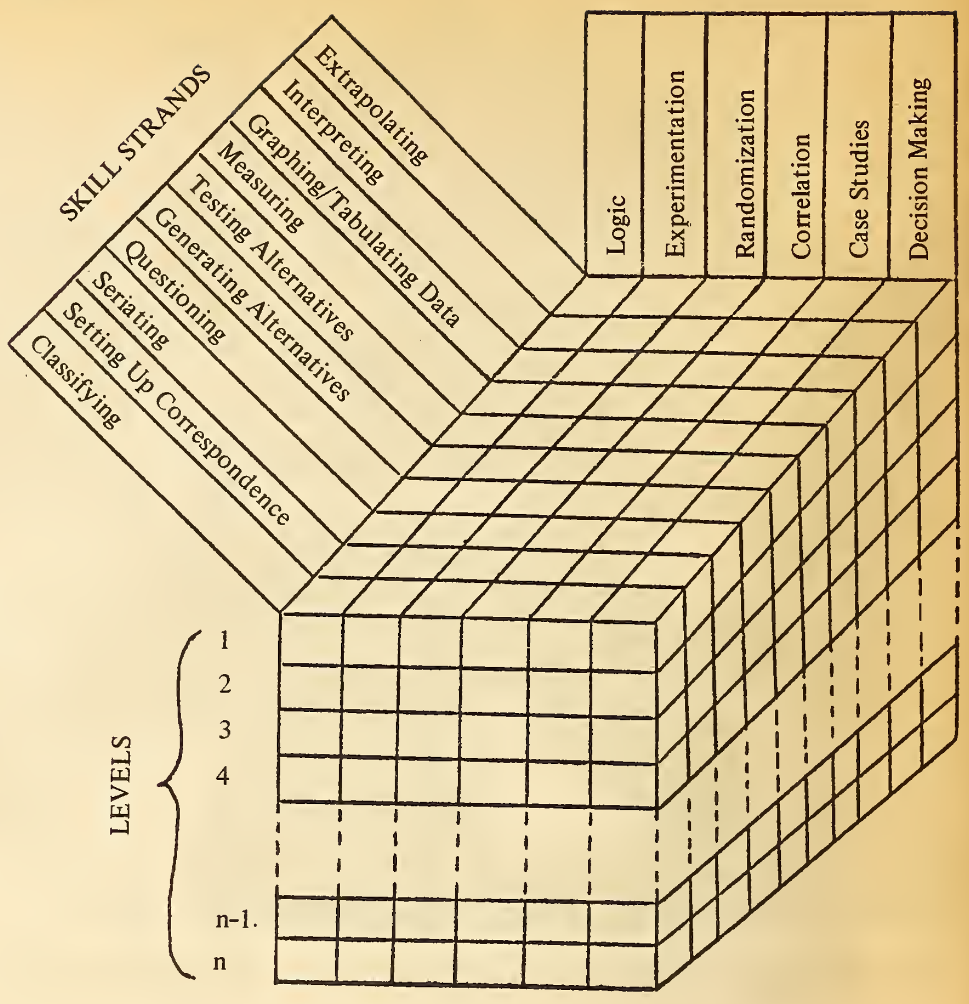
There then followed a period (1971–74) of specialization within the project, and of additions to the primary project staff within these specializations. For example, the original Port Colborne Inquiry group, augmented by John MacBean and Paul Robinson, completed the write-up and publication of the initial Inquiry Training project. Brison, who had by this time become OISE's Coordinator of Research and Development, continued his interest in group decision-making—a prelude to adapting the decision-making component of the Inquiry program to suit the purposes of his out-of-school project in Peterborough[4]—and subsequently encouraged his project officers to make further revisions. It was about this time, also, that James Love became interested in the use of inquiry methods in historical analysis, an interest that later mushroomed into a full-fledged project in Canadian Studies.

While all the foregoing was centered in the intermediate division, particularly in grades 7 and 8, a considerable interest began to develop at that time in thinking skills for the primary grades. Carl Bereiter and his associates began to construct thinking games that stimulated a number of basic intellectual abilities. Working now with Kenzie and Zamkow, I myself undertook applied research and observation of individual children in respect to particular thinking 'strands,' notably classification, measurement, and questioning. Ellen Regan and Kenneth Leithwood, building upon the original Conceptual Skills program, initiated their own Grade One Thinking Program, which also dealt with basic intellectual skills. Leonard Popp, recently arrived at Niagara Centre, began to sort out the complex interrelationships between the basic thinking skills and to flesh out the description of many of these skills. And Kenzie's interest in children's questioning led him to the concept of 'self-directed inquiry,' which he subsequently pursued with vigor within the project.

Written Output

Soon after the period of specialized development began, a major shift occurred in our views on how dissemination could best be undertaken. Up to this point in time, our record was one of prodigious output of (what appeared to be) high-quality written materials, but without a commensurate response in terms of teacher interest. The notions of implementation held by most of our officers at that time (including myself) were really quite naive: in effect we were following a traditional R & D model in which we assumed that the production of high-quality materials (i.e., documented to have effects in practice), coupled with the offer of assistance through workshops and the like, would lead large numbers of teachers to use these materials in their classrooms.

Figure 1



When this approach failed, more project writers began to reexamine the experience of Russell and Leithwood[5] in Peterborough and the conceptions of planned change that they had been advocating for some time. This led to a significant discontinuity in activities, in which the large-scale writing projects were virtually abandoned in favor of a much slower, but surer, process of influencing change in the classroom. Although this strategy has many variants, all begin with problems as teachers perceive them and work through stages of conceptualizing these problems, critically examining alternative proposals for solutions, modifying these alternatives to meet local conditions,[6] and pilot testing and evaluating preferred alternatives prior to widespread use.

The team began with objectives in the cognitive domain as defined by the Ministry guidelines that existed at that time. Since those objectives were really not formulated in operable terms, it is not surprising that materials produced by the team frequently turned out to be a potential 'solution'—and in many instances the most promising solution—to a problem shared by local curriculum groups all over the province: realizing the complex cognitive objectives that figure so predominately in current Ministry guidelines. However, the process that we have found successful (outlined above) almost invariably led to local revisions of our materials, the results of which are seen by the participants as derived from *their own thinking*. The 'low profile' strategy has sometimes had to be compromised to OISE pressures for 'visibility,' the latter being argued as a necessary condition for our continued existence. The creation of our Materials Centre was itself motivated to a large degree by the perceived need for compromise.

'Second-Generation' Personnel

A significant by-product of our recent approach has been the identification and involvement of what we shall term 'second-generation project officers.' For the most part these people—who now exceed in number the principal investigators and their immediate associates—were local consultants or curriculum committee members who were subjected to the strategy described above. However, rather than uncritically accepting the project's products, our second-generation collaborators have made significant adaptations, extensions, and improvements, while maintaining the spirit and general approach of the original materials. Some of these people now have positions of considerable influence, and it would probably be true to say that the main energy of the project as it was originally conceived resides in their current activities.

A more recent development has been the interaction with second-generation project officers in a new role—as OISE graduate students. While the benefits of their participation in courses—e.g., understanding the theoretical basis of the ideas, seriously considering alternatives, looking at the evidential basis of the program—are considerable, it has only been recently that the possibility has emerged for a full-fledged program that parallels their ongoing job responsibilities.

Current Applications

In the last two or three years the original principal investigators have turned their attention to various ramifications and extensions of the Major Thrust in Elementary School Thinking.

Discussion of these developments, however, will be left to a later section.

The Domain of the Project

When asked 'What *is* the Major Thrust in Elementary School Thinking?' I find it reasonable to reply that it is (a) a group of people who (b) have ideas about the development of thinking competencies that (c) are partially reflected in a set of curriculum materials. The account to this point has done sufficient justice to the 'who' question, but a really adequate account of their ideas about thinking and the resulting curriculum materials could only be had by studying the sample documents listed in the bibliography. This note will not try to present a summary of these matters, but will sketch briefly the 'domain' or 'types' of thinking dealt with in the program, hinting here and there at the pedagogy proposed. In undertaking this review, we will display our well-known dependence on schematic diagrams.

Types of Thinking

The 'top' of our scheme for thinking (figure 1) is a set of problem-solving models[7] dealing with (1) logical/quantitative thinking;[8] (2) causal thinking, which is itself further subdivided into (a) experimentation and randomization,[9] (b) correlational analysis,[10] and (c) case study analysis;[11] and (3) decision-making.[12] These models correspond roughly to the problem-solving emphases found in mathematics, science, geography, history, and guidance respectively. Each of these 'models' constitutes a plan, a describable set of steps the student is to undertake to arrive at a satisfactory resolution of the particular type of problem.

An example of the sort of analysis we expect (in experimentation) is illustrated in figure 2, a locally produced variant of one of our causal models. To illustrate how this works, we might imagine that a grade 7 science student, in the normal course of his work on magnetism, has formed the notion (hypothesis/idea) that 'the number of turns of wire makes a difference to the magnet's strength' (to use the sort of language that a grade 7 student might come forth with). He has, then, arrived at the starting point for a problem-solving episode, and we would expect him to do the following things in line with the model outline:

1. State the problem as a question, using whatever language he finds appropriate: 'Does the number of turns make any difference to the strength of the magnet?'
2. Clarify this question by identifying the hypothesized effect (the strength of the magnet), the means by which this variable will be measured (e.g., by the number of nails that the magnet will lift), and the supposed causal factor (the number of turns) and how this will be measured, progressing in this manner to a clarified question: 'Does the number of turns affect the strength of the magnet, measured by the number of one-ounce nails it will lift?'
3. Make a plan for answering that question, which involves identifying the factor to be changed, the variables to be held constant, and the means by which some estimate of the error can be obtained (essentially, by replication).
4. Record the data in a manner that lends itself to analysis, as indicated in figure 2.
5. Compare the effect of varying the experimental factor to the error obtained when it was not varied.
6. Judge whether the change that occurred when the experimental factor was varied

Figure 2

State the problem as a question.	Clarify and reword the question.	Make a plan for answering the revised question.	Carry out the plan.	Record the data obtained to show relationships.	State relationships observed.	Interpret the relationships.
'Does the number of turns make any difference to the strength of the magnet?'	Name the factor you are trying to influence (D.V.) Say how you will measure this factor (D.V.) Name the factor(s) that is supposed to influence the D.V. (E) Say how you will measure that factor (E) Reword the question if necessary. 'Does the number of turns affect the strength of the magnet, measured by the number of one-ounce nails it will lift? '	Make a list of the factors that could affect the D.V. If E is not named in the question, select it from this list. Say how you will change E and hold the other factors as constant as possible. Say how you will obtain an estimate of the affect of not holding other factors constant.		Make a graph table of the form: E1 | E2 — | — — | — — | — n1 10 turns | n2 20 turns 23 | 32 21 | 36 24 | 35	Calculate the *average* value of D.V. for each value of E. Calculate the *variation* in the D.V. for constant values of E. Say how much the D.V. changed when E changed (difference in averages). Say how much the D.V. changed when E was constant (variation).	By comparing the difference in averages with the variation, judge whether E affected the D.V.

was beyond the range of variation that could be attributed to error.

We do not, of course, simply lay this model on students. Rather, our approach has been to get students to muddle their way through a problem of this type in their normal fashion,[13] reflect on the adequacy of their approach, make suggestions for improvements, and synthesize these improvements into a model that becomes the basis for further independent experimentation. All this is described in the various monographs and papers dealing with our work on children's experimental thinking.

From the outset we found that this sort of training seemed to have a fairly significant effect on the student's thinking, at least as judged by the sophistication exhibited in project work and in our specially devised paper-and-pencil tests. The fact that we were able to get what appeared to be several years' growth with a fairly short period of training did not really come as a surprise, since we saw no reason for growth to occur very rapidly under prevailing school programs. Another way of saying this is that it was easy to get several years of 'natural' growth because the amount of growth that occurred in several years did not amount to very much.

Thinking 'Strands'

Despite these early successes it soon became clear that many students had not developed some of the component skills to a sufficiently high degree, and that these deficiencies considerably weakened the potential force of our pedagogy. For example, it is clear that experimentation in the physical sciences depends on a certain level of development of measurement skills; if the student cannot measure accurately, or if he does not know how to get an estimate of the error inherent in his measurements, then he can hardly be in a position to determine whether he has obtained any 'effect' by manipulating the experimental factor.

This observation launched a series of investigations and curriculum development activities in what we then termed 'thinking strands,' including measurement,[14] questioning,[15] separating and controlling variables, and so on.[16] We have never determined an actual finite limit to the number of potential 'strands,' but have tended to single out those that we regarded as 'central' in some respect. Among the latter were so-called primitive intellectual abilities—things like 'classification,' 'seriation,'[17] and 'correspondence,'[18] which some theorists, notably those in the Piaget tradition, have tended to take as the basic building blocks of all logical behavior.

What we tended to do within each strand, and this partly by task analysis and partly by observation of children, was to construct a series of stages or levels of maturity in respect to each skill. This 'growth scheme' allows the teacher to decide the students' present level of development and to determine the point to which students' growth might next be directed. Our monographs also contain suggestions, based on our own studies with individual children and intact classrooms, as to how the teacher might stimulate a child's movement from one level to another.

We have sometimes felt that the sheer volume of Major Thrust output has encouraged some of our more leisurely paced academic colleagues to suspect that our work must be superficial, without adequate footing in conceptualization and research. Anyone inclined to this point of view should seriously examine our work in children's experimental thinking, and the related field of measurement. We began by making the usual search of the research literature; but, as has been the case in respect to most of our strands, while this literature made reference to plausible starting points, it contained neither the descriptions of growth nor the suggestions for potent pedagogy that are essential to our scheme. These constituents emerged only after three years of analysis, applied research, and work with individual children, in which Kenzie's doctoral thesis, our monograph on children's experimental thinking,[19] and a series of papers on measurement[20] became inextricably intertwined. The ideas contained in those publications were incorporated into our later interventions in classrooms, and the fact that our programs are based on a great deal of knowledge not available in the research literature probably explains their (often spectacular) effects.

Primary/Junior Focus

As mentioned in our 'historical section,' many of our collaborators in the Major Thrust have worked at the primary and junior grade levels. Work initiated by Popp at Niagara Centre is perhaps the most ambitious project of this kind.[21] What it is proposed to do is (a) to develop and exhibit the interrelationship between all the primary thinking strands, and (b) to decompose standard classroom tasks (e.g., the ability to decode written symbols) into their primary intellectual prerequisites and to diagnose (and undertake remedial action) in respect to these tasks in terms of the underlying skills.

Among the most popular products of the Major Thrust has been *Thinking Games,*[22] developed by Carl Bereiter and Valerie Anderson for the primary and junior grades. Yet another substantial effort in this area has been made by Ellen Regan and Ken Leithwood,[23] who combined an upward extension of the Conceptual Skills Program with some inquiry elements in their monograph *Stimulating Cognitive Growth,* designed for teachers of the early primary years.

The principal investigators in the Major Thrust have never been of one mind in respect to methodology but have rather exhibited a broad spectrum of opinion, particularly in respect to the education of primary-grade children. At one extreme we have Kenzie's self-directed inquiry, which is more concerned with developing the child's confidence in his ability to find out by empirical investigations than with any specific cognitive outcome.[24] At the other extreme we have proponents of the 'competence breeds motivation' viewpoint, who feel that it is both appropriate and necessary for teachers to stimulate the development of particular skills at particular times, and that motivation to use these skills will come as the child derives pleasure from his own new competence. In between are a variety of approaches of varying degrees of structure.

Almost since its inception the Major Thrust has had a substantial link with Hedges's parent volunteer work. The basis of the link was our realization that the intensity of 'thinking' pedagogy could be greatly strengthened if the teacher (whether regular or volunteer) could interact with individual children or small groups of children at least at the 'critical juncture' in growth schemes—that is, where a substantial accommodation of the child's existing cognitive structure was expected. Recently the Hedges group has been training parent volunteers to interact with children in respect to a particular 'strand,' a number of such volunteers working at one time under the regular classroom teacher's direction.

Application of Skills

All the above envisages the student using problem-solving strategies and individual skills in a firsthand, active way. Two significant variants of this theme are to see these same models and skills used in both *reflective* (critical thinking) and *secondary* (expository writing) ways.

For example, it is our view that the essence of critical reading (part of what is normally termed 'critical thinking') is the ability to reflect on the adequacy of arguments presented in written form.[25] But if the reader is faced with an argument that makes a causal claim, for example, the only way he could judge its adequacy would be to project the claim on a model describing the steps required to validate it —that is, on a model for experiments. Thus, if a grade 8 student were to read the claim (frequently made by the Canadian Association of Chiefs of Police) that the reinstitution of capital punishment would reduce the incidence of violent crime, then we would expect the student to process this claim through such a model, and in so doing to realize that the claim has not been validated by the evidence presented and that certain kinds of information would be necessary to make this validation.

Expository writing may employ the models to advantage, though in a more secondary way.[26] Suppose the student, employing the model, has thought his way through the capital punishment issue, has

Children exchange 'Thinking Game' attitude cards

arrived at some conclusion, and is now ready to report this conclusion in writing. At this stage the model provides a good *organizer* for his exposition, since it recapitulates exactly the phases his thinking went through. For clearly it would be quite appropriate to begin with a statement of the initial question, then move on to how that question was clarified, then to the plan for answering the question, then to the data gathered, the method of interpretation, and so on.

The Effects of the Program

Effects may be analyzed along several dimensions, each of which might serve as the basis of discussion: (1) the potency or magnitude of the effect; (2) the domain of the effect (i.e., the number of students influenced); and (3) the interrelatedness of the effect to ongoing movements, and hence its potential for further effect.

In the early stages of the project, and to varying degrees thereafter, Major Thrust personnel expended a considerable proportion of their funds attempting to document the effects of their programs, a step that seemed necessary (at least initially) because of the high failure rate of earlier projects in the 'thinking' field. Our efforts included the construction and validation of a Productive Thinking test and the collection and analysis of a great deal of student performance data.

The claims we would make from all this are as follows:

—First, we are virtually certain that our materials produce educationally significant effects in normal classroom situations when they are taught by ourselves or people who have worked directly with us; these effects appear to go beyond the particular topics with which the initial training was associated, and even beyond particular subject fields. But since all of our testing had to be done in school, we do not have—nor are we likely ever to have—any substantial data on the transfer of the skills into 'real life' situations.

—While we are confident about the effects obtained by second-generation project personnel, these people have themselves trained their own circle of associates, who may themselves be influencing still other teachers, and so on. This is good news in the sense that we have a kind of mushrooming phenomenon going that could rapidly influence a large number of students. The negative side of this mushrooming effect, however, is that there is some loss in fidelity or authenticity at each juncture, and one can only wonder how far down the line we could go while still being satisfied with the results. (Perhaps we are being a bit too squeamish here, however, because the conceptions governing those thinking programs that our people are now replacing are really quite frightening in their naivety.)

One aspect of the Major Thrust's relatedness to ongoing activities—and hence of its potential effect on even wider audiences—resides in the remarkable congruence between current Ministry objectives for the primary, junior, and intermediate grades and the emphases the Major Thrust group decided to pursue some eight years ago. Perhaps it would not be too farfetched to claim that our project has had some effect on Ministerial thinking, the intervening link being a number of Ministry consultants who have acted as collaborators and participants in our programs. But the more plausible argument is simply that both our emphases and the Ministerial objectives reflect a current worldwide movement toward the application of school learning to real-life problem-solving contexts.

A second facet of the Thrust's relatedness resides in the perspective it has given its participants on several matters critical to OISE's operation—in particular, the concept of field development, the nature of graduate instruction, and the notion of a 'decision-oriented' publication program.

As for the notion of field development, it has already been noted that the thinking of Major Thrust principal investigators—most of whom are housed in OISE Field Centres—moved from a fairly standard R & D approach to a concept that focused on, and tried to inform, the curriculum decision-making of local educators. There can be no doubt that the rapid transition in Major Thrust thinking was energized by our responsibility to produce change in real school settings. Or, to put the matter another way, the fact that we tried to mount and implement the Major Thrust in a Field Centre context radically influenced our conception of what field development can and should be. This conception is currently being elaborated by a group of which four of the five members were principal investigators in the Major Thrust.

Our views on what graduate instruction might be—particularly as reflected in the M.Ed. and Ed.D. programs—took shape as we began to interact with what we have termed 'second-generation project personnel' and began to compare what they could do with the manifest competencies of the typical OISE M.Ed. graduate. This comparison (which was not very favorable to OISE) suggested that a sequence of M.Ed. courses should be arranged in parallel with the 'natural phases' of local curriculum development work—conceptualization of a problem, selection or invention of viable alternatives, evaluation of the alternatives, and so on—and that such sequences should be set up in subject areas in which OISE faculty members had developed materials of documented effectiveness, thus virtually guaranteeing that graduates would have some visible skill (such as a capability of influencing the performance of students in respect to important Ministry objectives).[27] The present indications are that this type of program will be supported by OISE's Department of Curriculum, which is itself vitally concerned with the effects of its courses on curriculum decision-making at all levels.

Finally, it might strike the observer as an oddity that only a small proportion of the output of the Major Thrust has found its way through the regular OISE publication channels. The reason for this is that we perceive the regular publication program as being knowledge-oriented, as seeking visibility for its authors and for OISE, and as slow, while the requirements for a publication program that would assist the strategy we have found successful would be that it is decision-oriented, that it aims at the visibility of its users, and that it is fast in mirroring changes in thinking and new developments in the mushrooming project field. The marked contrast between OISE's and the project's publication requirements has resulted in our setting up our own publication program, which has operated to this point mainly out of Niagara Centre but which will now be incorporated in the new Resource Centre for the Development of Thinking Materials.

This new Resource Centre, which is now operative with a half-time coordinator, will provide to qualified users not only printed documents but mimeographed reports, tests, evaluative notes, and suggestions for improvement that may have occurred to someone last Thursday and may only be available in handwritten form.[28] Our experience is that all these unpublished materials, which could never meet the standards of OISE's formal publishing program, are nonetheless the sort of input that is required for curriculum committees who are in the process of conceptualizing a particular facet of the thinking domain.

It is not our intention, incidentally, that everyone have access to our current files, but only those who have passed the preliminary screen of being currently involved in, or responsible for, curriculum development in the thinking field. Other potential users, including teachers at large, will have access to a more restricted yet quite substantial proportion of the Major Thrust's output.

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21. Popp, L. A., Litnewski, J., & Bebout, L. *Parent's Manual for Teaching Basic Thinking Skills.* St. Catharines: Niagara Centre, OISE, 1974.
22. Anderson, V., & Bereiter, C. *Thinking Games,* Books 1 and 2. Toronto: OISE, 1975.
23. Regan, E. M., & Leithwood, K. A. *Stimulating Cognitive Growth: A Program for Primary Grade Children.* Toronto: Trent Valley Centre and Department of Curriculum, OISE, 1974.
24. Kenzie, W. R. 'Piaget and Self-Directed Learning: A Guide for Parents and Teachers.' Toronto: R & D Information Services, OISE, 1974.
25. Boire, C. *Critical Reading.* South River: East Parry Sound Board of Education, 1975.
26. Robinson, F. G. *Project for the Improvement of Written Expression.* St. Catharines: Niagara Centre, OISE, 1972.
27. Carlow, C. D., Popp, L. A., & Robinson, F. G. 'Off-Campus M.Ed. Courses Sub-Unit.' In F. M. Connelly & D. A. Roberts, eds., *Graduate Studies in Curriculum: A Data Base and Issues for Deliberation in Program Planning.* Toronto: Department of Curriculum, OISE, 1974.
28. *The Thinking Materials Resource Centre Catalogue.* St. Catharines: Niagara Centre, OISE, 1976.

The materials listed above represent only a small fraction of the documents available from the Thinking Materials Resource Centre. Requests for materials or for further information should be addressed to:

Ms. Halia Zamkow
Niagara Centre
Ontario Institute for Studies in Education
Connaught Public School
28 Prince Street
St. Catharines, Ontario L2R 3X7.

DUTY OF CARE:

The Gary Thornton Case

Melvyn P. Robbins
Department of Educational Administration, OISE

One and a half million dollars is a lot of money. It may, in fact, represent the highest personal injury award in Canadian judicial history[1] (p. 650). Still, it will not restore Gary Thornton's body.

Gary was a secondary school student of the Prince George school system in British Columbia. On April 6, 1971, he suffered an injury that left him a quadriplegic. Gary's father filed suit against the teacher, the principal, and the board. In the suit he asked that the plaintiffs be held responsible for the injury and that adequate damages be assessed against them in order to compensate Gary.

The court held that he suffered this injury because his teacher, Mr. Edamura, failed to exercise the proper duty of care that a teacher owes to a pupil. The court found that his teacher's negligence left Gary, in essence, just a living head attached to a metabolic machine (p. 649).

The one-and-a-half-million-dollar award against Mr. Edamura and the Board cannot erase the negligent act, nor can it cure Gary. Unfortunately, money is all that the law can offer in compensation.

In this article, I describe the events that led to Gary's accident and the principles of law that led the judge to hold that the teacher was negligent, that the teacher and the school board were responsible for the damages, and that the principal was not responsible. Also considered are the principles of law that allowed the judge to determine the amount of damages.

The article concludes with some personal observations relevant to Ontario teachers, principals, supervisory officers, and trustees.

Events

On April 6, 1971, Gary and his secondary school classmates in physical education were offered three choices: floor hockey, gymnastics, or weight lifting. The gym was a multipurpose area with a large floor and a stage at one end. Gary and six other students chose gymnastics, which took place on the stage. Weight lifting was also carried out on the stage, but over to one corner. Floor hockey, as might be expected, was played on the floor area.

After organizing his class, Mr. Edamura, the teacher, positioned himself at his desk on the front left-hand side of the stage. By looking down and ahead he could observe the floor hockey. However, his back was to the other groups, and he had to look over his right shoulder to observe gymnastics and weight lifting. He then occupied himself by filling out student report cards.

The gymnastics students were using a spring-board, wrestling mat, and two rolls of foam chunks obtained from the supply room.

'The boys positioned the spring-board so that its "high" or spring end was facing toward the end of the stage where Edamura was seated. The leading edge of the spring, or "high", end was at or near the middle of the stage in its length and breadth. Starting a short distance in front of the spring, or "high", end of the board and extending forward from it they placed the wrestling mat. On top of the wrestling mat they placed the two bundles of foam chunks end to end. In the result the end of the foam chunks furthest from the board was almost behind Edamura as he sat at his desk. Upon arranging this "configuration"—as it was referred to—the young gymnasts commenced to run from the far end of the stage onto the spring-board and onto the foam chunks. They were trying to somersault into the foam chunks.' (p. 625)

The boys were not particularly good at gymnastics and consequently were not too successful in completing their somersaults.

'These boys concluded that they did not have an adequate distance to run in order to obtain a spring that would elevate them high enough to complete the somersault. They then hit upon an idea to remedy that problem. They placed a box horse at the low end of the board so that they could jump from it down onto the high end, catapult upwards, do the somersault and

come down onto the foam chunks. Edamura agreed to their request to use the box horse for that purpose and returned to his report cards.' (p. 625)

At this point a teacher of gymnastics would recognize several inherently dangerous conditions:

1. The boys were not adept gymnasts, and as such they required supervision and instruction exceeding that which could be provided by a teacher who sat doing paperwork with his back to them.
2. The gymnastic exercise was conducted without the use of 'spotters'—generally considered mandatory for beginners as well as for skilled amateurs.
3. The foam chunks were not adequate for the type of exercise being performed. They were designed for use in certain track and field activities such as the broad jump and the pole vault. They were never intended for use by somersaulting gymnasts, who are expected to land on their feet on a hard floor. Furthermore, the netting that encased the foam could easily catch a boy's foot and cause him to lose his balance.
4. The spring-board, which was designed for running and hurdling, was inherently dangerous if jumped on from the height of a box horse, its action being entirely unpredictable when used in this second 'configuration.' All but one of the witnesses, including Mr. Edamura, testified that 'they had never used that configuration before' (p. 626). The judge found that the 'configuration' should have been recognized by any reasonable physical education instructor as one fraught with danger (p. 629).

An accident was predictable, and one occurred. Larry Karlson attempted a double somersault and landed off balance, hurting his hand. It was later learned that his wrist had been broken.

'He went over to Edamura complaining of pain in his arm, that he was winded and that he had hurt his wrist on the floor. Edamura did not ask him what kind of stunt he had attempted to perform—he merely examined the wrist carefully, did not observe any gross swelling and suggested to the boy that he put it under cold water. The boys and he then placed what are called "Add-a-Mats" around the perimeter of the foam chunks.' (p. 627)

Despite this mishap, no warning was given to the boys; nor was the 'configuration' tested for safety. Mr. Edamura simply returned to his desk and continued entering grades. The usual practice after a mishap is 'to stop the exercises when someone is injured until it is determined how and why' (p. 629). Shortly after, Gary Thornton attempted a somersault and landed on his head. As a result, he suffered a severe spinal injury that will leave him a quadriplegic for the remainder of his life.

His family sued the teacher, his principal, and the Board. The B.C. Supreme Court awarded damages to Gary against the teacher and the Board, but not against the principal. The Board and the teacher are appealing the decision.

Legal Reasoning

A judge must weigh the testimony of the witnesses, determine the applicable legal principles, and render a judgment. In order to understand the decision, it is useful to consider the answers to a series of five questions. These answers provide a brief introduction to some of the principles of the law of negligence (carelessness).

1. *Why was Mr. Edamura found to be negligent and responsible for the accident?*
In general the basic principle of negligence law is that *we owe a duty of care to our neighbor*. The standard of care required varies with the circumstances. First: The minimum duty of care required of all teachers is that of a 'careful parent of a large family' (p. 633). The judge held that a careful parent would want to know why one child became hurt in case there might be risk to another child. Mr. Edamura did not do this after the Karlson accident, and consequently failed to meet the minimal duty of care required.

Second: 'A person who provides anything for the use of another is bound to provide a thing reasonably safe for the purpose for which it is intended' (p. 632).

The box horse and spring-board combination, the inappropriate mats covered with dangerous netting, and the lack of spotters were all conditions that could not be called reasonably safe. Thus, Mr. Edamura failed to meet the duty of care required under this second principle.

Third: 'The practice of a profession, art, or calling which from its nature, demands some special skill, ability, or experience, carries with it a duty to exercise, to a reasonable extent, the amount of skill, ability, and experience which it demands' (p. 632).

Mr. Edamura was found not to exercise the duty of care required of his profession for several reasons: (1) allowing use of a dangerous 'configuration,' (2) inadequate instruction, (3) permitting the boys to attempt exercises beyond their ability or training, (4) minimal or casual supervision of the activity, and (5) failing to investigate and remedy the cause of the Karlson accident.

Thus the facts supported the conclusion that he was careless and because of his carelessness the Thornton boy was injured. Under these circumstances the court found that Gary was injured as a direct result of Mr. Edamura's negligence.

2. *Why was the Prince George School Board also held to be responsible for Mr. Edamura's negligence?*
If an employee is acting within the scope of his employment, then the employer is deemed responsible for his negligent act. In this case Edamura was acting within the scope of his employment as a physical education teacher at all relevant times. Since Edamura was liable, so too was the Board.

3. *Why wasn't the principal held to be responsible?*
The judge found that 'there is no suggestion nor evidence that leads to any causal connection between the accident in question and any acts or omissions on his part. In the circumstances the action against him is dismissed' (p. 635).

4. *Why wasn't Gary found responsible, at least in part, for his own injury?*
A pupil is not expected to possess the same knowledge as his instructor. Gary was dutiful as a pupil and could not be expected to foresee the risks inherent in the exercise. Thus he was not found to have contributed in a careless way to his own accident.

5. *How were the total damages set at $1 534 058.93?*
The principle of law is that the victim of someone else's negligence 'should be put back into the position both in terms of finances and health that he would have been in had he not been injured' (p. 650).

Perfect compensation cannot be awarded, but the judge 'endeavoured to use the wrongdoer's money to provide Gary with the dignity, comfort and length of life to which we all in this society feel so rightly entitled' (p. 650).

As a result of the teacher's negligence, Gary will require total care twenty-four hours a day for the rest of his life. He has also lost much of the enjoyment of life and his ability to earn a living. Specifically, the award is the total derived from the sum of damages awarded in four categories:

Special damages	$ 42 128.87
Cost of future care	1 188 071.80
Loss of ability to earn income	103 858.26
Loss of amenities and enjoyment of life	200 000.00
Total award	$1 534 058.93

The defendants were also assessed costs.

In My Opinion

The case, when read in conjunction with selected sections of The Education Act[2] and the *Revised Regulations, Elementary and Secondary Schools—General*,[3] provides numerous implications for Ontario teachers, pupils, principals and supervisory officers, and trustees. Some of these implications follow.

Teachers

Mr. Justice Andrews posited three standards that define the duty of care owed by teachers to their pupils: (1) 'to act as the careful parent of a large family' (p. 633), (2) 'to provide a thing reasonably safe for the purpose for which it is intended' (p. 632), and (3) 'to exercise, to a reasonable extent, the amount of skill, ability, and experience which it [the practice of a profession] demands' (p. 632). These three standards, when added to duties required by the Act (section 229) and the Regulations (section 34), as well as to the general duties of members of the Ontario Teachers' Federation,[4] constitute criteria by which to judge the professional practice and competence of any given teacher.

A letter of dismissal for a teacher must state the reasons for the dismissal, which must be in accordance with the terms of the contract (Act, section 233). Both the permanent (white) and probationary (green) forms of the contract state, 'the teacher agrees to be diligent and faithful in his duties.' The terms *diligent* and *faithful* are not defined; but diligence implies vigilance. This suggests that the duty-of-care standards not only are applicable when determining negligence after an accident, but also may be applied as standards for judging the adequacy of the performance of a teacher for dismissal purposes .

Finally, in the event of an accident to a pupil it is common to hold both the teacher and the board responsible for the damages. However, even when both are held responsible there is nothing to prevent (1) the injured party from ignoring his claim against the board and seeking relief solely from the teacher, (2) the board from suing the teacher for the damages paid by the board to the injured party, or (3) the board's insurance company from suing the teacher for damages paid. There have also been cases when teachers were found not to have been acting within the scope of their authority, and consequently they were held solely responsible for the damages. Teachers can reduce potential liability by carrying professional liability coverage, and/or by making sure that the board's coverage is adequate in amount and that the policy contains clauses that protect the teacher from the aforementioned possibilities. This type of coverage could be negotiated during collective bargaining discussions and is consistent with section 146.8 of the Act.

Pupils

The regulation provides that a pupil must 'submit to such discipline as would be exercised by a kind, firm and judicious parent' [section 3 (1) (b)], and that a pupil must be 'obedient and respectful to the teachers' [section 37 (1) (c)]. Although any pupil would be lawfully correct in refusing to obey an unreasonable request, it is doubtful (1) that pupils are aware of this possibility, (2) that pupils know enough to determine whether or not a command is in fact reasonable, and (3) that the school encourages pupils to act and think for themselves within the guidelines of reasonable obedience. Thus, as with the Thornton case, it is implied that pupils will not generally be found to have contributed to their own negligence when acting on orders of a teacher. This is sad. It implies a type of education that may lead students when they become adults to excuse their behavior with a famous saying heard after the last war—'I was only following orders.'

Principals and Supervisory Officers

The rule is: If you're going to sue, sue everybody remotely connected with the accident. Thus, in the Thornton case, the principal was also a defendant. However, no evidence was presented that causally linked the principal with the accident, and so the action against him was dismissed. Had the accident occurred in Ontario, a good case could have been developed linking both the principal and the supervisory officer to the causal claim.

Principals are required by The Education Act 'to maintain proper order and discipline' [section 230 (a)] and to 'give assiduous attention to the health of the pupils' [section 230 (j)]. They have direct responsibility for teachers who are required to carry out assignments as delegated by the principal [section 229 (1) (a), (e), (g)—see also Regulations, section 39]. Similarly, also under the Act, the director [section 247 (2)] and other supervisory officers [section 248] are linked in the chain of command and responsibility.

Thus, if a principal or supervisory officer could be shown not to have exercised, to a reasonable extent, his duties under the Act with respect to the supervision of a negligent teacher, then the principal or supervisory officer might also be held negligent and consequently also liable for damages.

As with teachers, inadequate supervision would violate the duty of care owed by a principal and a supervisory officer and could be construed as grounds for dismissal or removal from office.

Trustees

Generally, trustees are not individually responsible for their acts as trustees. However, the courts have held individual trustees responsible for acts of omission or commission that violate their statutory authority or their statutory obligation. Obviously trustees cannot exercise authority that is neither granted nor implied by law; nor may they fail to carry out their prescribed duties and still expect legal immunity.[5]

Had the Thornton case occurred in Ontario, and had the insurance coverage of the board been less than adequate to meet the claim, then it is possible to speculate—and this is only speculation —that a ratepayer suit might have been filed against the trustees as individuals. The claim might have been that the damages in excess of insurance coverage should not be charged against the board since the trustees were individually negligent, because (1) they failed to 'make provision for insuring adequately' equipment and staff [Act, section 146-8], (2) 'provide suitable furniture and equipment' [section 146-8], and (3) they failed to conduct Board business 'in accordance with the Act and the regulations' [section 146-9].

Although the possibility of individual liability is at present remote, trustees may wish to carry personal liability insurance for tort responsibility, to assure themselves that the statutory provisions are being carried out in their jurisdiction, and to verify that the board carries adequate insurance for its employees and volunteers.

Notes:

1. *Thornton, Tanner et al.* v. *Board of School Trustees of School District No. 57 (Prince George), Edamura and Harrower.* (1975) 3 W.W.R. 622. All quotations pertaining to the case are from this source.
2. The Education Act, Statutes of Ontario, 1974 Chapter 109.
3. *Elementary and Secondary Schools—General, Revised Regulations of Ontario*, 1970, Regulation 191.
4. Ontario Teachers' Federation. *We the Teachers of Ontario*. Toronto: OTF, 1975.
5. Enns, Frederick. *The Legal Status of the Canadian School Board*. Toronto: Macmillan, 1963. Pp. 180-189.

A subsequent article in this series will discuss the legal aspects of teacher dismissal. If you have any suggestions or questions that you would like answered in the article, please write to the author at OISE. Requests for reprints should also be addressed to the author.

The author wishes to acknowledge his debt to John Broome and Ernest Epp for their assistance in the preparation of this article.

A CONSUMER REPORT ON SCHOOL TEXTBOOKS

3

Intermediate Mathematics for Grades 7 and 8

Mark Holmes
Office of Field Development, OISE

This report is the most depressing to date. There are certain areas of the curriculum where one virtually despairs of finding good Canadian texts—most areas of science and history other than Canadian history. But surely there must be a market for Canadian textbooks in mathematics, a subject that is generally compulsory at least to grade 9. Unfortunately, it seems that American inroads into the Canadian market outside Ontario are by now considerable, and the pressures to buy American are building even within Ontario. The only comfort—cold comfort—is that, as far as I am aware, the American math textbooks are characterized by most of the same defects as ours. The grass on the other side really is not any greener.

In reviewing mathematics texts, I looked first at content. It may be argued that there are great differences in content among provincial curricula. That is not the case with respect to the three provinces with which I am best acquainted. The same or similar texts are used, and differences are more in terms of ordering of content than in the actual substance over (say) a three-year period from grade 7 to grade 9. There is some difference in emphasis between Quebec and Ontario: Quebec is moving with the American tide to pure mathematics, algebra, and intuitive geometry, while Ontario appears to be about to turn more toward the practical approach to mathematics, emphasizing 'model-building,' problem-solving, and relevance to everyday life. To what extent these movements will affect what actually happens in the classroom remains to be seen.

In terms of content I looked for sound coverage of the following aspects of mathematics: algebra (including equations, notations, graphs, sets, bases); geometry (approached both intuitively and deductively); review of basic mathematical processes; applied mathematics (measurement, area, volume, speed, ratio and percentage, statistics); problem-solving—not necessarily as a separate unit; and metrication, both as a separate unit and integrated in the text. I am assuming that the major objective of the intermediate math program is to provide a basic mathematical background both for the future mathematician and scientist and also for the youngster who may not take mathematics after grade 9 or 10.

The organization of material was a further criterion. Are there sufficient examples? Are there additional examples for the bright students, and is there sufficient drill for the slower students? Are the examples graded fairly, or are they likely to lead quickly to frustration? The appearance and design of the texts are important, as is Canadian content. All the texts reviewed are Canadian with the exception of one, which is a Canadian edition of an American text.

I thought it might be fitting if I quantified my ratings in terms of the texts' content on a scale of 0 to 5, where 0 indicates complete absence of the desired characteristic, 1 unsatisfactory coverage or treatment, and 5 excellent coverage and treatment. The comments apply specifically to grade 7 texts, but I have reviewed the comments in terms of the companion grade 8 texts (where available) and think that they are generally not unfair if considered as judgments of the pair. (See table.)

Math, Book 1, revised metric edition, J. J. Del Grande et al. Gage, 1974 ($5.20). (Also Book 2.)

Presentation—In terms of appearance this text is the most exciting. Gage is to be congratulated on its consistently good text design. Gage books came out well in this respect in previous reports.

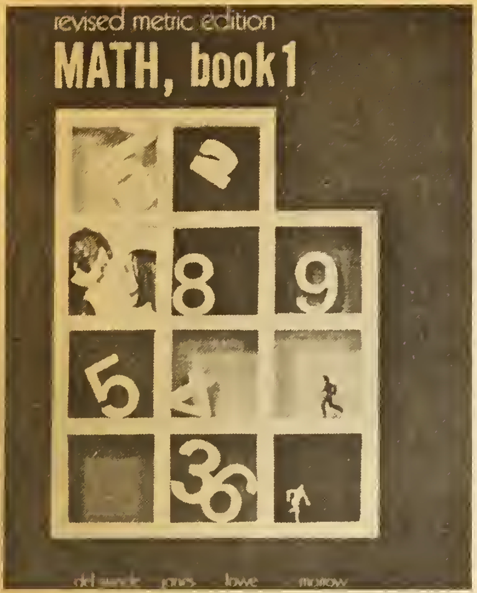
Organization—The development is innovative and exciting. The experienced math teacher with an enthusiastic class will probably find this text the most satisfying. But in other circumstances it could be frustrating. The very approaches that will be stimulating for some teachers will to others prove gimmicky and unrelated to the basic needs of pupils. The book would generally be least suitable for the slow learner with a poor foundation in basic math.

Content—There is little systematic review for the slower pupil. There is no overall approach to problem-solving—in fact, the whole area of the connection between math, logic, diagrams, and problem-solving is virtually ignored. (That fault is common to all the texts reviewed.) The geometry will delight some and infuriate others. I personally have real reservations about such a heavy reliance on intuitive approaches to geometry, a discipline that I consider basically deductive. That is a matter of personal taste over which there will be much disagreement. Measurements are expressed in metric units; however, there is no real attempt to teach the metric system—nor to apply it to areas where today's young people will have problems over the next five or ten years.

Basic Mathematics 1, D. C. Mason and N. J. Sparrey. Ginn, 1973 ($4.48).

Presentation—The appearance and design of this book are quite acceptable,

	Text:						
Content	Gage	Ginn	Nelson	Holt	Copp Clark	Dent	Addison
Algebra	5	2	4	4	4	4	4
Geometry	3	2	3	3	2	2	4
Basics	2	4	3	3	3	1	3
Applied Math	3	5	4	2	3	2	3
Problem-solving	3	2	2	3	2	2	3
Metrication	1	2	–	–	–	–	1



although less imaginative than the Gage text. The book, however, is eminently teachable and is likely to be attractive to pupils.

Organization—Sound organization will make this text particularly useful for an average or below-average class. The metrication is an exception. It is likely to be inadequate unless the pupils already have an excellent grounding from the elementary school. If they do have that grounding, then the text can be faulted for not going deeply enough into the metric system.

Content—*Basic Mathematics* is the most different of all the texts reviewed in that it does not follow the 'new math' party line of the 1960s. It fulfills admirably the new Ontario thrust toward applied math, but its problem-solving is generally weak. Its worst disadvantage for widespread use is its not very rigorous treatment of algebra and geometry. More able children will find little challenge.

Modern Mathematics, Grade 7, J. D. Cadwell et al. Thomas Nelson & Sons, 1965 ($4.52). (Also Grade 8.)

Presentation—A sound traditional approach.

Organization—The text is arranged for a sound traditional teacher who is not planning on grouping his class. There is little to challenge the really bright student, and insufficient remedial help for the slower student.

Content—Considering the age of this text, it has stood well the test of time. Its content is no more dated than that in most of the recent publications, and I would find it hard to justify replacing this text by either Gage's or Ginn's in terms of mathematics for the average pupil. Obviously it is not a metric text, and so no one should consider buying a new set. Its handling of algebra and geometry is perfectly adequate.

Contemporary Mathematics, Book I, A. P. Hanwell et al. Holt, Rinehart & Winston, 1964 ($5.20). (Also Book II.)

Presentation—A sound traditional text.

Organization and Content—A good logical organization, although it lacks the clarity of its younger brother *Patterns in Arithmetic*, which I have always felt was the best elementary math series of the 1960s. This series takes a less extreme 'new math' approach than some, which is to the good. Offsetting that is a comparative weakness in geometry. Once again, I could not justify replacing this text with one of the newer texts on purely mathematical grounds.

Mathematics, Book 7, W. B. MacLean et al. Copp Clark, 1970 ($4.76).

Presentation—Traditional.

Organization and Content—There tend to be insufficient examples in places. Although the examples are not difficult (not much challenge for the bright student), they may still be insufficient for the slower student. The weakness in geometry and the lack of metrication make this an unlikely choice as a new text. The text is best suited for very average students.

Discovering Mathematics, Book 7, H. N. Archibald et al. Dent, 1967 ($3.60). (Also Book 8.)

Presentation—Acceptable.

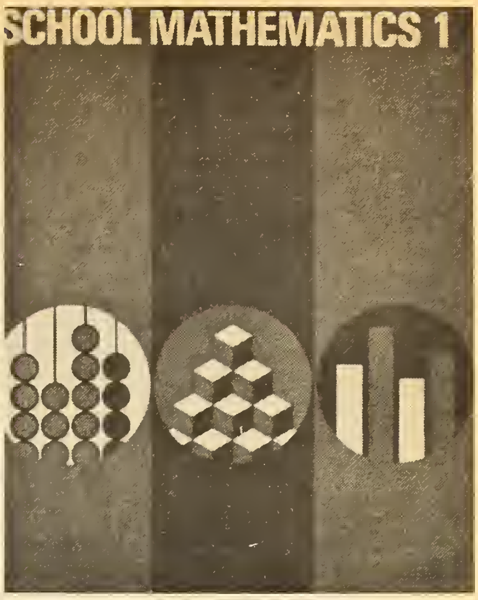
Organization and Content—In this area the text has weaknesses. The examples are often quite difficult, and sometimes few examples are provided. The heavy 'new math' orientation and little emphasis on basic mathematics makes the text of doubtful value for the slow learner. On the other hand, the geometry provides neither a strong intuitive nor a strong deductive approach. The algebra is good for the better student. The book is acceptable for the future mathematician.

School Mathematics, Book 1, C. N. Fleenor et al. Addison-Wesley, 1974 ($8.80). (Also Book 2.) A Canadian edition of an American text (not listed on Ontario's Circular 14).

Presentation—A very clear, well-designed text.

Organization—A well-researched, workmanlike book that shows the advantages of the large American market in enabling heavy investment in text development. Easy examples are plentiful for the slower student, and more demanding examples are also given for the better student.

Content—The content is generally very sound. It makes no real attempt, however, to teach the metric system, although measurements are expressed in metric units. Its greatest weaknesses—applied mathematics and problem-solving—parallel those of most Canadian math curricula. There is no doubt that this is a sound, middle-of-the-road textbook. Those in a position to purchase it will have to consider carefully any advantages it may hold over the Ginn or Gage texts.



Conclusion

Given my original biases, no single text can be said to have a reasonable chance of achieving most of what I would like from an intermediate mathematics program. That is unfortunate, as math is a subject very likely to be taught substantially from the textbook.

A number of texts deal extremely well with algebra and pure mathematics. Two texts deal well with intuitive geometry (Gage, Addison-Wesley), but neither integrates a deductive approach, which I would like to see. No text takes on critical thinking as applied to problem-solving—particularly unfortunate in Ontario, where there is an increasing emphasis. With the exception of the Ginn text (and to a lesser extent the Addison-Wesley), there is insufficient attention paid to the slower student and to the job of applying mathematics to everyday life. There is no implication here, by the way, that application of mathematics to everyday life is of importance only to the slow student.

The school that can develop groups to use the Ginn and the Gage texts flexibly will be most fortunate. Slower groups will tend to use the Ginn more than the Gage. That school will still have a responsibility to reinforce and develop the metric system and do more work in problem-solving. That is unfortunate, as they are the two tasks that teachers are likely to find the most difficult. The Addison-Wesley is an acceptable, all-round text if one is willing to overlook its price. It is sad to write that there are only two Canadian metric grade 7 textbooks on the market. Leaving aside the metric question, the newer texts show disappointingly slight improvements over the older ones.

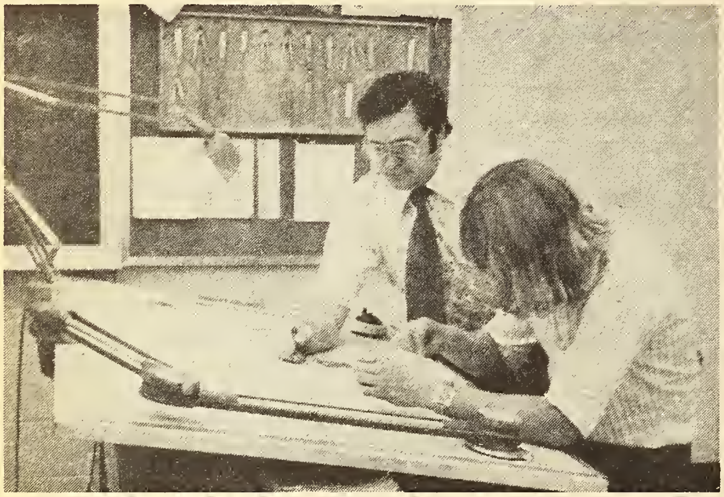
From Models to Real Structures

Tom Warbin
Dryden High School

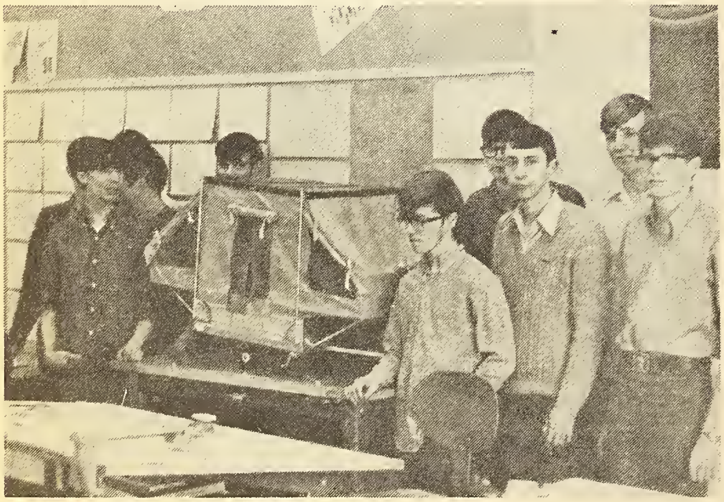
Over the past six years, senior students in a one-period-a-day program at Dryden High School have designed and built a variety of scooters. The project grew out of a class assignment that involved the total planning of a functional camping trailer—a task that alerted the students to the need to use and understand drafting language, drawing techniques, and various shop processes.

Each year the students produced larger, more refined designs, but not until a belt-driven scooter, designed and built by the class, actually worked was the cynicism with which some of them regarded the project wholly dispelled. The enthusiasm generated by the first success led, the following year, to the construction of an improved model with a spring-suspended rear wheel and a chain drive. A year later, a sturdy two-seater marked a further advance, and it, in turn, was succeeded by a model that featured distinctive body design. All models adhered to the structural criteria established at the program's inception: (1) simplicity, (2) ability to function in flat-track operation, (3) speed without disregard for aesthetic considerations.

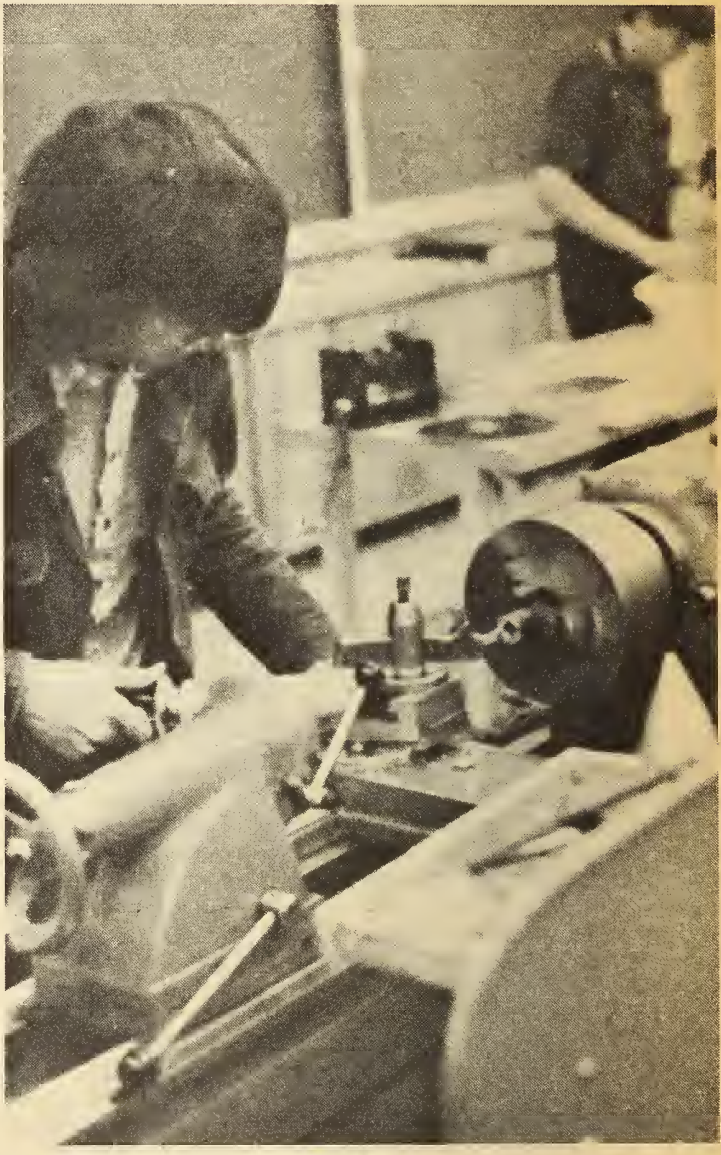
The improvements that could be made in a single year were limited by the time allotted to the program; but by retaining one basic model throughout, the students afforded themselves maximum potential for change.



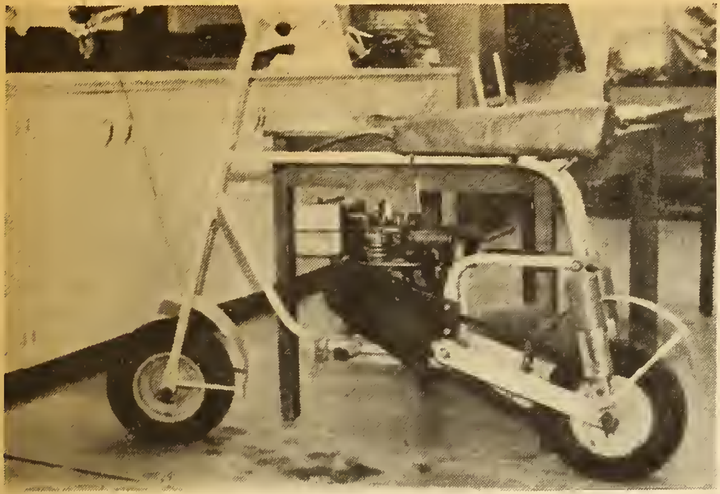
1. Tom Warbin, drafting instructor at Dryden High School, introduces a shop program in which senior students design and build functional vehicles.



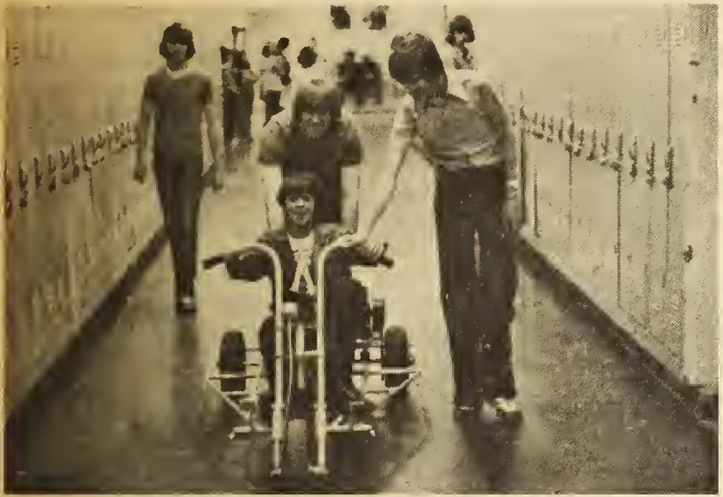
2. Students display their first piece of work – a model camping trailer completely designed and built in the special one-period-a-day program.



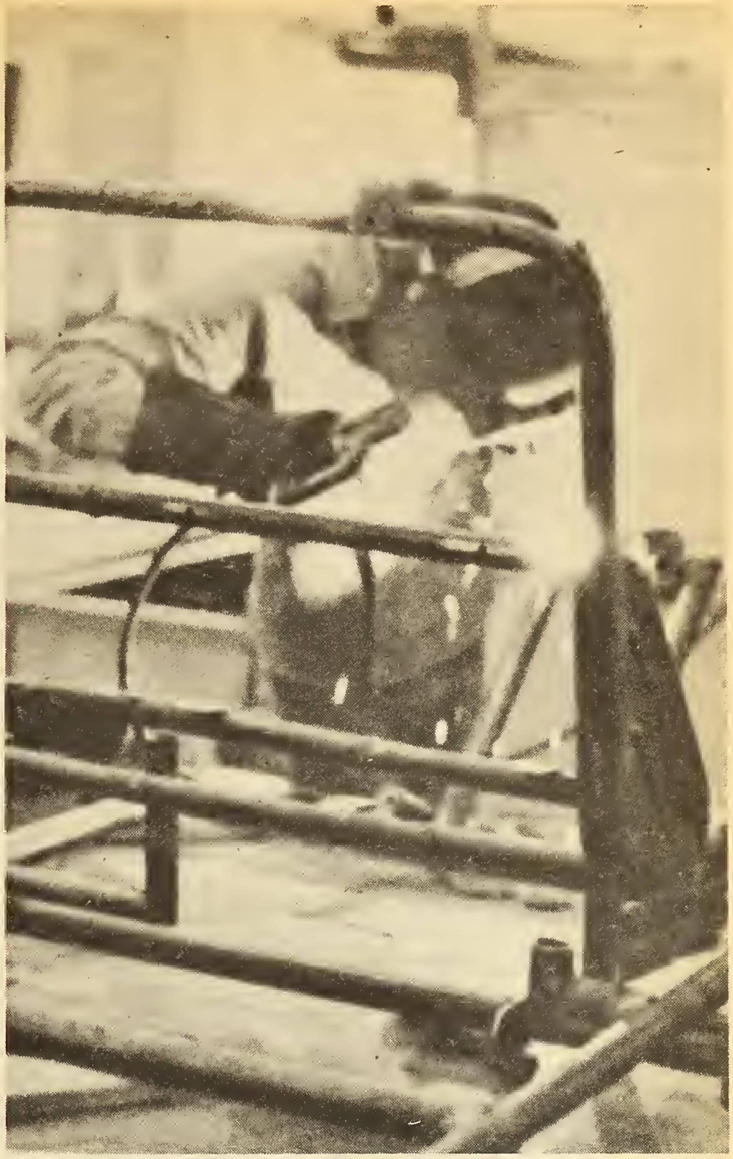
3. The need for familiarity with drafting and its language was obvious to the students at a very early stage, but as their efforts became more ambitious so did their awareness of the need for proficiency in a variety of shop skills.



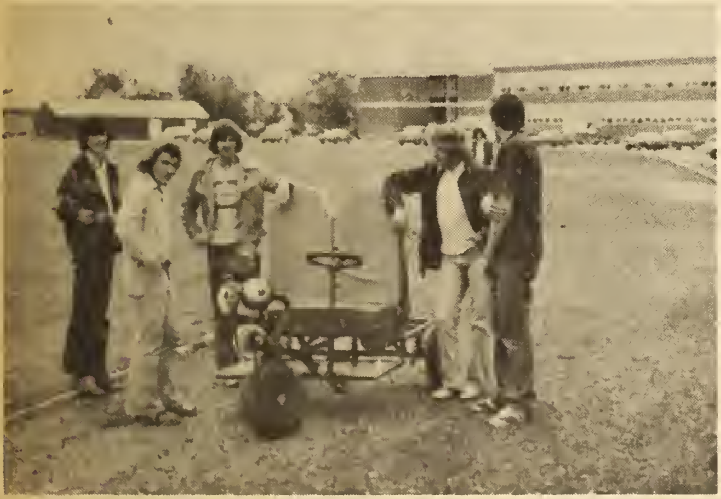
4. The move from models to full-size working structures was a high point in the program. When the first vehicle – a belt-driven scooter – actually worked, the last traces of student cynicism disappeared in a wave of enthusiasm.



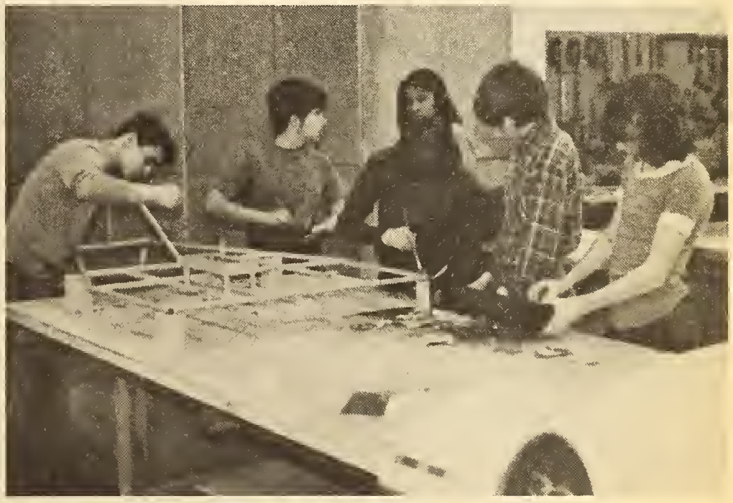
5. Retention of the basic model enabled classes in succeeding years to effect maximum change in the limited time available to them. Improvements featured in the second scooter included a spring-suspended rear wheel and a chain drive.



6. As design became more sophisticated, shop skills took on even greater significance. Welding with precision and care was an essential part of building the frame of the sturdy two-seater.



7. Proud students take the completed two-seater out for a run. The new model boasts a front-wheel drive, coil-spring-suspended rear wheels, and a steering wheel with a bicycle chain to actuate steering control.



8. Improvements are still under way, and the emphasis now is on body design. Here the program enters a new field involving fiber glass construction and use of a special mold.

Observations sur l'enquête d'étudiants de français du compté de Lambton

K. D. Plumley
Coordonnateur du français pour le comté de Lambton

En 1973, le numéro d'automne du *Canadian Modern Language Review* a publié des résultats d'une enquête d'étudiants de français (9ième, 10ième et 12ième années) de North York. Grâce à la coopération de Monsieur Ian Daniels, coordonnateur de Langues Vivantes, j'ai pu obtenir une copie du rapport et du questionnaire. Nous avons donné un questionnaire semblable à tous les élèves du programme de français de la 8ième jusqu'à la 13ième année dans le comté de Lambton.

Toutes les écoles élémentaires du secteur publique dans le comté de Lambton utilisent le programme *Ici on parle français* (Prentice-Hall). On omet unité 8 du premier niveau et unité 6 du deuxième niveau parce qu'il nous manque du temps pour compléter le travail. La durée des classes est de vingt minutes. Les professeurs ont douze classes par jour en trois écoles différentes. Tous les professeurs sont itinérants. Le français est obligatoire dans les 7ième et 8ième années.

Six des écoles secondaires continuent le même programme au moins jusqu'à la fin de la 12ième année, tandis qu'une des écoles secondaires a choisi *Le Français international* (Centre Educatif et Culturel Inc.) pour leurs programmes de français Niveau 5. Deux des écoles secondaires offrent aussi un programme en succession pour leurs étudiants de Niveau 4.

La plus grande école secondaire offre deux programmes parallèles au Niveau 5, un programme désigné audio-linguistique employant *Ici on parle français* et l'autre désigné traditionnel utilisant les textes *Le Français vivant* et *Cours moyen de français I* (Clarke Irwin). On peut transférer d'un programme à l'autre (d'ordinaire de l'audio-linguistique au traditionnel) à n'importe quel temps où l'étudiant rencontre des difficultés. Les gradués des deux programmes parallèles suivent un programme commun en la 13ième année avec le texte *French for Oral and Written Review* (Holt, Rinehart & Winston).

Observations (statistiques)
Total de répondants—4228 (de la 8ième jusqu'à la 13ième année). A noter: Où l'expression 'une moyenne' est employée, cela indique que la question avait un nombre de sous-sections.

8ième année (1380 répondants)
1. Pour 26% le programme était présenté trop vite.
2. Une moyenne de 25% pensaient qu'on devrait passer plus de temps à apprendre les quatre compétences linguistiques (c'est-à-dire la compréhension, le parler, la lecture et l'écriture).
3. Une moyenne de 69% pensaient que *tous* les aspects du programme étaient utiles (c'est-à-dire dialogues, exercices oraux, questions oraux, passages à écouter, histoires, grammaire et exercices écrits).
4. Envers les exercices sur bande magnétique 39% avaient une attitude négative.
5. A la question 'Est-ce que ta famille veut que tu apprennes le français?' 32% ont donné une réponse négative.
6. Pour ceux qui continuaient le français en 9ième année, une moyenne de 60% pensaient que les raisons importantes pour continuer étaient: (a) leurs notes étaient bonnes, (b) ils l'aimaient, (c) les classes étaient intéressantes, satisfaisantes et une vraie gageure, (d) ils voulaient suivre un cours de français à l'université, (e) ils voulaient être bilingues.
7. Pour ceux qui ne continuaient pas en cours de français, les seules raisons significatives indiquées par une moyenne de 40% des répondants étaient: (a) ils avaient des difficultés de se souvenir du travail appris auparavant, (b) ils n'en avaient pas besoin, (c) ils préféraient un autre cours, (d) le programme était trop difficile. Ces raisons semblent être associées avec le type de programme, plutôt qu'avec le français per se. Cela semble indiquer qu'un autre type de programme que le programme audio-linguistique au niveau secondaire pourrait encourager quelques-uns des élèves de ce groupe à continuer.

Niveau secondaire (2848 répondants)
1. Une moyenne de 38% pensaient que la compétence de *compréhension* devrait recevoir plus d'importance.
2. Une moyenne de 36% pensaient que le *parler* devrait recevoir plus d'importance. (A noter: Pour ces deux compétences, le pourcentage en 11ième, 12ième et 13ième années était remarquablement plus élevé que la moyenne des années 9ième jusqu'à 13ième.)
3. Une moyenne de 76% pensaient que tous les aspects du programme étaient utiles (c'est-à-dire dialogues, exercices oraux, questions oraux, histoires, passages à écouter, grammaire et exercices écrits).
4. Une moyenne de 44% avaient une attitude négative envers les exercices sur bande magnétique.
5. Une moyenne de 24% ont donné une réponse négative à la question 'Est-ce que ta famille veut que tu apprennes le français?'
6. Une moyenne de 43% suivent un cours de français parce qu'ils ont besoin d'un 'crédit'.
7. Une moyenne de 66% suivent un cours de français parce que (a) ils s'intéressent à apprendre une nouvelle langue, (b) il pourrait être utile pour leur carrière, (c) ils pourraient en avoir besoin pour leurs études universitaires, (d) il pourrait être utile pour voyager.
8. Une moyenne de 60% de ceux qui continuaient leurs études de français le faisaient parce que (a) leurs notes étaient bonnes, (b) ils l'aimaient, (c) les classes étaient satisfaisantes, intéressantes et une vraie gageure, (d) ils voulaient suivre un cours de français à l'université, (e) ils voulaient être bilingues.
9. Pour ceux qui ne continuaient pas en français, les seules raisons significatives semblaient être parmi les élèves de la 9ième jusqu'à la 12ième années: (a) ils avaient des difficultés de se souvenir du travail appris auparavant, (b) c'était trop difficile, (c) leurs notes n'étaient pas bonnes. (A noter: Les raisons varient beaucoup d'année en année au niveau secondaire.)

Pourcentage d'étudiants qui continuaient en français: 8ième année—59.2%, 9ième année—92.2%, 10ième année—89.9%, 11ième année—87.6%, 12ième année—82.3%, 13ième année—76.4%.

Observations et conclusions
8ième année
Puisqu'un élève sur quatre en 8ième année a l'impression que le programme est présenté trop vite, et qu'on devrait passer plus de temps à apprendre les quatre compétences linguistiques, cela semble indiquer la nécessité de plus de temps pour bien préparer les élèves à continuer au niveau secondaire.

Puisque les professeurs partagent ce sentiment, et puisqu'ils considèrent qu'ils pourront compléter entièrement les deux niveaux du programme *Ici on parle français* en trois ans avec des périodes de vingt minutes, la proposition de commencer le programme de français en 6ième anneé, utilisant le même programme, semblerait satisfaire les désirs des élèves et des professeurs.

On espère qu'un tel changement aurait plusieurs effets avantageux:

1. La pression sur les élèves d'atteindre une certaine compétence demandée par le programme au niveau secondaire serait diminuée.
2. Par conséquent, l'atmosphère en classe deviendrait plus agréable sans cette pression.
3. Les professeurs auraient assez de temps pour présenter des aspects culturels sans sacrifier les compétences linguistiques.
4. Le temps perdu en conduisant d'une école à l'autre serait significativement réduit.
5. Dans la plupart des circonstances, le professeur pourrait passer la moitié du jour à une certaine école, plutôt que seulement quelques périodes. Par conséquent, les élèves seraient plus disposés à reconnaître le professeur de français comme un membre plus permanent du personnel de l'école.
6. L'instruction curative serait beacoup plus disponible aux élèves de chaque école.
7. Absences de travail pour les professeurs du niveau élémentaire à cause de leur susceptibilité à la fatigue physique et émotive diminueraient.

Niveau secondaire

Il y a des implications très importantes pour la succession du programme de français et pour le réglage du programme entier à trouver dans les résultats de l'enquête. Puisque 87% de tous les étudiants enregistrés en cours de français au niveau élémentaire et au niveau secondaire dans le comté de Lambton *n'ont aucun contact avec le français hors de la classe*, il est absolument essentiel que le temps qui passe entre leurs études scolaires de français et la possibilité de l'employer dans le monde des affaires ou du travail soit aussi bref que possible.

Si les élèves commençaient à apprendre le français à un très jeune âge, et continuaient pendant huit ans au niveau élémentaire, mais ne le continuaient pas au niveau secondaire, presque tout ce qu'ils avaient appris aurait la tendance de disparaître de leur connaissance et d'être oublié avant qu'ils aient l'occasion de l'employer comme adultes—professionnels, hommes d'affaires ou simplement comme voyageurs.

Mais par contre, si les étudiants passaient la même durée de temps (sept ou huit ans) à étudier le français de la 6ième année jusqu'à la 12ième, les étudiants auraient plus de possibilités d'utiliser ce qu'ils avaient appris avant de l'oublier.

Il faut aussi considérer le fait que les étudiants aux niveaux supérieurs ont la tendance d'être plus motivés que les élèves élémentaires, et que cette motivation influe d'une manière significative sur leur abilité d'apprendre. Puisque le pourcentage d'étudiants qui continuent leurs études de français au niveau secondaire est bien plus élevé qu'au niveau élémentaire, on devrait considérer sérieusement l'idée d'encourager les étudiants secondaires à poursuivre leurs études de la langue.

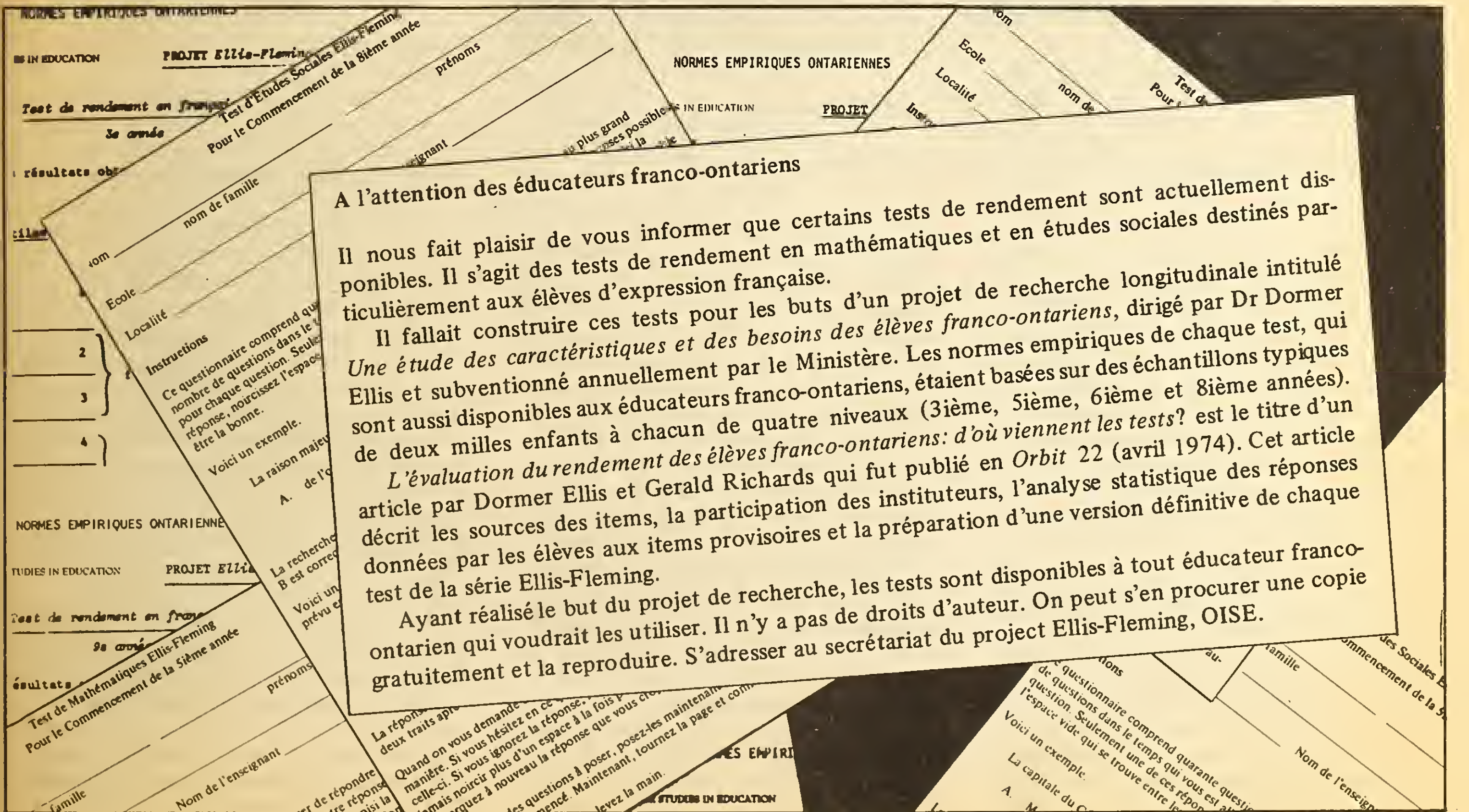
Il faut considérer aussi que le document du Ministère de l'Education, 'H.S.1', indique qu'on devrait recommander l'étude des deux langues et cultures officielles du Canada. De plus, quelques universités recommencent à exiger un cours de langue seconde en 13ième année pour l'admission à certains cours universitaires.

La coopération des directeurs d'école et des conseillers en encourageant l'étude d'une deuxième langue dans les écoles secondaires pour ceux qui ont l'intention de continuer leurs études à une université ne peut pas être exagérée.

Il est aussi important d'offrir deux types de programmes en français. Le programme audio-linguistique, qui est commencé à l'école élémentaire n'est pas convenable pour tout le monde. On devrait aussi offrir un programme traditionnel avec texte de grammaire pour les étudiants de la 9ième à la 12ième années.

Si les deux propositions principales sont acceptées par la commission scolaire, c'est-à-dire, de commencer l'étude de la langue française à la 6ième année et d'encourager les étudiants secondaires qui espèrent continuer leurs études à l'université d'essayer d'obtenir au moins quatre 'crédits' en français à l'école secondaire, la facilité des étudiants d'employer la langue comme moyen de communication quand ils seront citoyens canadiens adultes sera considérablement augmentée.

Trois semaines après cette présentation, la commission scolaire du comté de Lambton a recommandé qu'on commence le programme de français en 5ième année. On a rejeté la suggestion pour les écoles secondaires.


NORMES EMPIRIQUES ONTARIENNES
PROJET Ellis-Fleming
Test de rendement en français
Test d'Études Sociales Ellis-Fleming
Pour le Commencement de la 8ième année
Test de Mathématiques Ellis-Fleming
Pour le Commencement de la 5ième année
prénoms
nom de famille
Nom de l'enseignant
Ecole
Localité
Instructions
Voici un exemple.
STUDIES IN EDUCATION

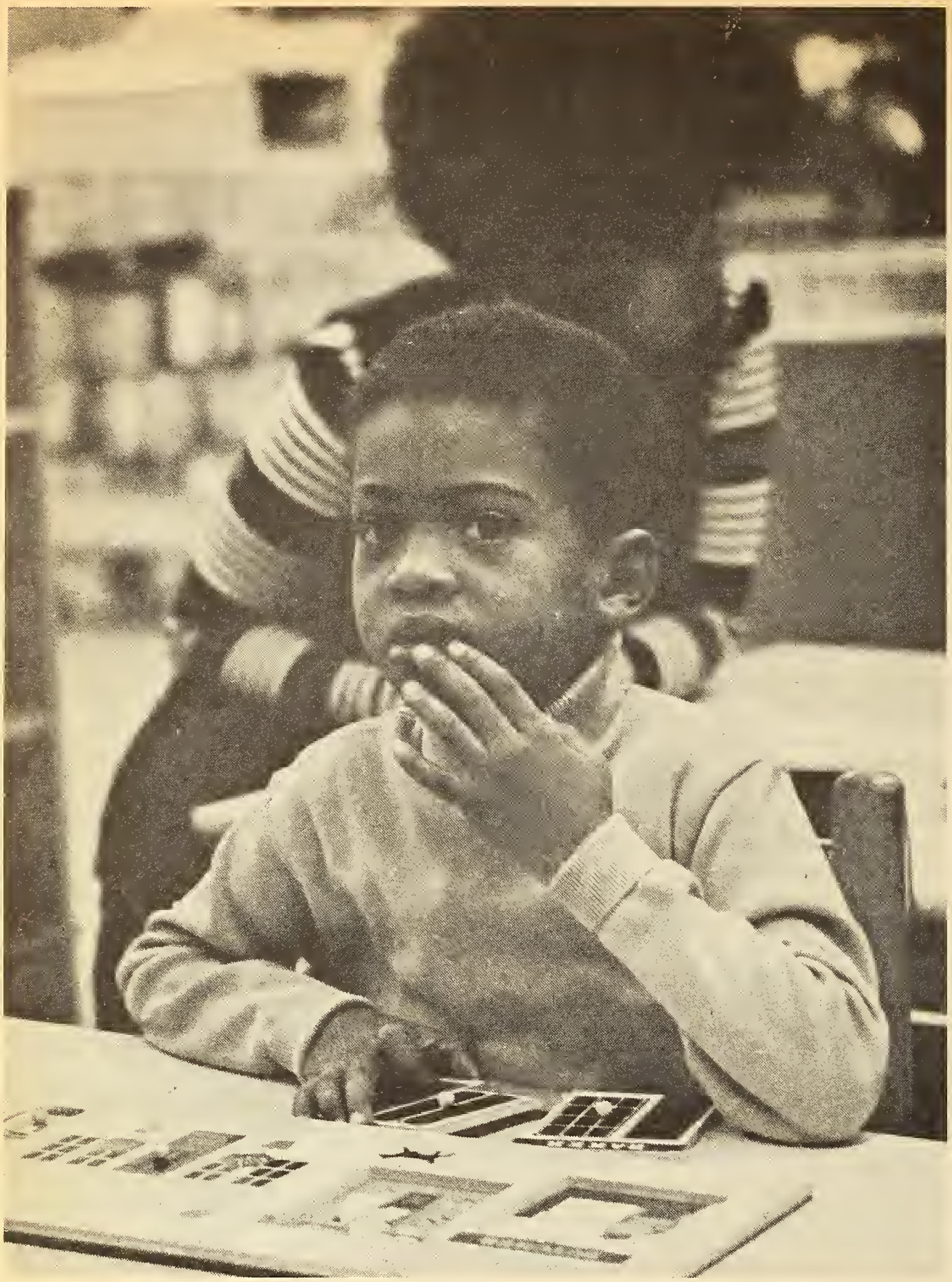
A l'attention des éducateurs franco-ontariens

Il nous fait plaisir de vous informer que certains tests de rendement sont actuellement disponibles. Il s'agit des tests de rendement en mathématiques et en études sociales destinés particulièrement aux élèves d'expression française.

Il fallait construire ces tests pour les buts d'un projet de recherche longitudinale intitulé *Une étude des caractéristiques et des besoins des élèves franco-ontariens*, dirigé par Dr Dormer Ellis et subventionné annuellement par le Ministère. Les normes empiriques de chaque test, qui sont aussi disponibles aux éducateurs franco-ontariens, étaient basées sur des échantillons typiques de deux milles enfants à chacun de quatre niveaux (3ième, 5ième, 6ième et 8ième années).

L'évaluation du rendement des élèves franco-ontariens: d'où viennent les tests? est le titre d'un article par Dormer Ellis et Gerald Richards qui fut publié en *Orbit* 22 (avril 1974). Cet article décrit les sources des items, la participation des instituteurs, l'analyse statistique des réponses données par les élèves aux items provisoires et la préparation d'une version définitive de chaque test de la série Ellis-Fleming.

Ayant réalisé le but du projet de recherche, les tests sont disponibles à tout éducateur franco-ontarien qui voudrait les utiliser. Il n'y a pas de droits d'auteur. On peut s'en procurer une copie gratuitement et la reproduire. S'adresser au secrétariat du project Ellis-Fleming, OISE.



West Indians, IQ, and Special Education Placement

Carl J. Bognar
Department of Applied Psychology, OISE

Whether intelligence tests are culturally biased is certainly not a new question. The influence of social class and cultural background on intelligence test scores has been recognized—and studied—since the time of Binet. Initially, as the 'mental measurements' movement spread from France, literal translations of the Binet tests were used for assessments of the aptitude of children from other cultures. It soon became evident that specific test items varied in difficulty from one culture to another; some items were virtually impossible for children from another culture, while other items turned out to be easier or more difficult for children at given ages. Research into these cross-cultural differences continues even today.

Canadian psychometrists have now sufficient experience to be fairly confident what test results signify where native-born English-speaking children are concerned. They also realize that testing in English is, of course, not appropriate for non-English-speaking children. But Canada has had a great deal of immigration from other English-speaking parts of the world—the United Kingdom, the West Indies, India, and Pakistan—and yet we have not stopped trying to assess children from these other cultures with the same tests we use with native Canadians.

The research study we will describe was carried out with one English-speaking immigrant population, West Indians, to ascertain some of the problems in intellectual assessments performed on them.

Into the Opportunity Class

In the present study, it was decided to investigate the stability of IQ scores of West Indian children who had been placed in 'opportunity' classes. That is, it was decided to reassess a number of these children to determine, if possible, how accurate the initial assessment had been.

If a teacher feels that a certain pupil is having serious difficulty with the academic program, he/she may refer that child to special education services, so that an intellectual assessment can be made. To qualify for special-class placement, a child must score below a criterion IQ (usually 80, although this varies from board to board and depends on the IQ test). IQ is only one of several criteria used, with teachers' evaluations and principals' opinions playing some role as well. Nevertheless, the IQ score may be valued highly, because it seemingly presents the most 'objective' assessment of the child's capabilities.

In addition to IQ, there are other subtle factors that determine whether a child will be placed in special education. For example, Mercer (1973) was interested in the problems of assessment and placement of Mexican-American children, who are disproportionately represented in special education classes in virtually every county in California. She found that teachers were less likely to refer a Mexican-American child for assessment but were more likely to mention 'special education placement' in the referral. In turn, the psychologist was more likely to recommend a special-class placement when those words had been used by the teacher. When this is magnified by the greater proportion of Mexican-Americans who scored below the criterion IQ, in spite of lower referral rates, four times as many Mexican-Americans were actually placed in special classes.

Our own research was carried out in a large working-class and middle-class borough of Metro Toronto. Eighteen West Indian pupils in 'opportunity' classes were selected. Then the special-education records of a large number of Canadian children were searched in order to match a sample with the West Indians. 'Canadian' children were defined as children who had been born in Canada and who used English as the first language in the home. The two groups of children were matched on age, sex, date of most recent assessment, and IQ at the time of the most recent assessment. These thirty-six children were all reassessed in their own schools on the Wechsler Intelligence Scale for Children (WISC), the test that had been used in their previous assessment by the board.

Comparison of the Two Groups

Before analysis of the data, it was necessary to determine the success of the matching procedure; that is, were the two groups in fact alike? Of course, there was no problem in matching for sex of subject, and there was no significant difference in mean ages for the two groups (mean age approximately 11 years, 10 months). Similarly, there were no significant differences between the two groups on the mean time since the last assessment (approximately fourteen months) or on Full Scale IQ as assessed at that time (about 75).

There was one problem with the matching procedure, however. The WISC used in both assessments is composed of two halves: six Verbal subtests and six Performance subtests. The Verbal subtests measure rather diverse verbal skills (vocabulary, comprehension of social situations, verbal reasoning, oral arithmetic) and yield a Verbal Scale IQ score (VS IQ). The Performance subtests measure perceptual and manipulative skills (puzzles, blocks, eye for visual detail, visual reasoning) and yield a Performance Scale IQ (PS IQ). The Full Scale IQ (that is, the total IQ) is roughly the arithmetic average of the VS IQ and the PS IQ.

When the two groups of subjects were compared on Full Scale IQ, there were no significant differences between them. But when Verbal and Performance IQs were compared across the groups, there were significant differences. The Canadian children had PS IQs larger than their VS IQs, while the West Indian children had VS IQs and PS IQs that were almost equal. This was an interesting accidental finding, because discrepancies between Verbal and Performance IQs are meaningful to diagnosticians. For example, 'normal' or average children have VS and PS IQs approximately equal, and within the range 90-110. 'Perceptually handicapped' children have Verbal scores much higher than Performance scores, while lower Verbal scores tend to indicate some type of emotional difficulty. The pattern shown by the Canadian children in our study is common among children whom we label clinically as 'mentally retarded.' On the other hand, the pattern shown by the West Indians—below average IQ but VS and PS approximately equal—is typical of children who are 'culturally different.' Had their mean IQ been higher, the pattern would be that of 'normal' children. (Literature on this topic is reviewed by Sattler, 1974.)

Retest Results

The most interesting finding on the retest was that West Indian children had gained, on the average, six or seven points more than the Canadian children. The Canadian children also gained, on the average, a few points; this may have been due to the experimenter's style of administering or scoring the test, or may have been due to a 'practice effect' on the test. Additionally, two of the Canadian children were exceptional cases, where the Full Scale IQ gain was over ten points. Nevertheless, the gains made by the West Indians were substantially greater than those of the Canadians.

The two Canadian cases noted were also interesting examples of how an environmental change may create significant changes in IQ. One case was a girl who had been orphaned, placed in a children's psychiatric institute, and then after several years placed in a stimulating foster home. Her initial assessment results were from the time she left the institution to enter the public school system, and presumably the gain represents the favorable effects of the foster home.

Information concerning the other 'Canadian' case where a substantial gain had been made was not available to us until several months after the study was completed. This case involved a girl born in Canada to an English-speaking mother, and thus she met our criteria of being 'Canadian.' However, her mother was Jamaican, and the girl had lived in Canada until the age of six years, when they returned to Jamaica. The girl began school there and remained for nearly three years before returning to Canada. After several months in a regular classroom here, she experienced difficulty with the program and was placed in an opportunity class.

To return to the test results, it was found that gains in VS IQ were in proportion to gains in PS IQ for both groups, so that they maintained the VS–PS patterns mentioned above. This finding is contrary to much of the research with West Indian children in England, where results suggested that the Verbal Scale, oddly enough, was less biased against West Indian children. It was hypothesized at that time that the disadvantage that West Indian children experienced on the Performance subtests was related to the dearth of puzzles and other visually oriented materials in their classrooms. According to our study, the two scales are equally biased against West Indians, at least in the first few years after arrival in Canada.

One further significant trend was that young children tended to make more substantial gains than older children, on the Verbal portions of the test at least. This was true of both Canadian children and West Indians, although the young West Indians gained more than any of the Canadians and more than the older West Indians.

An IQ of 90 is considered the bottom end of the 'normal' range and is higher than the special-class placement criterion of most boards. On our retesting, seven of the West Indians scored above 90. Two issues are then raised. First, is continued special-class placement appropriate for these children? Second, and more important, was it *ever* appropriate?

The problem in classifying these children as 'opportunity' class pupils originates in several of our assumptions. First of all, we forget that what is measured by IQ tests is really performance on a set of tasks, many of which are closely related to school learning (Cleary et al., 1975). This is a critical error for the assessment of children who may be emigrating from a different school environment. What we are doing is assessing, indirectly, the effects of a different educational experience, but we use the test results to impute an innate, fixed capacity. That is, we measure how much the child has learned in relation to Canadian standards, and then use it as evidence that he/she *cannot* learn.

Why did the IQ scores drift upward? Although the 'opportunity' classes may be helping the West Indian children academically, there is one indication that this is not the case. On only one subtest—Arithmetic—was there absolutely no mean gain by the West Indian children. Interestingly, the Arithmetic subtest has traditionally been considered the most academically oriented subtest. Lack of gain here suggests that the gains in IQ are happening spontaneously, for reasons other than the academic program.

Cultural Factors Influencing Performance

West Indian children are at a language disadvantage for the first few years after arrival in Canada. Although most West

Indians speak English, nominally at least, their dialect is quite different from the language typically used in Canadian schools, different to the point of difficulty in comprehending and being understood. Syntax, word usage, and intonation are dramatically different.

In addition to this language handicap, the West Indian child's previous educational experience may fail to prepare him adequately for active participation in the Canadian classroom. In spite of dramatic advances in the last few years, West Indian education falls short of the standards to which Canadians have become accustomed. Because of the lack of funds, books are old (and imported largely from Britain), other supplies are scarce, and the curriculum in general does not reflect West Indian life. Overcrowding is common, with the average class containing 40 to 45 pupils (although the situation is even more severe in Jamaica). Compulsory education is virtually universal in the West Indies, although attendance regulations often go unenforced because of the overcrowding.

Teacher education is often meager, and traditional British methods have persisted. Thus, teachers often utilize an orally directed question-and-answer approach, with little emphasis on understanding the correct answer. Discipline tends to be harsh and authoritarian, in obvious response to class size. All of these factors may make a West Indian child's first months in a Canadian classroom a rather befuddling experience.

A further disadvantage for West Indian children is the emotional impact of immigrating. Many West Indian parents leave their children behind when they first come to Canada, causing disruption in the child's life, and occasionally precipitating intense resentment. Then, sometimes after many months, when the parents are settled and have started to adapt to the Canadian way of life, the child is uprooted again and brought to Canada. In the meantime, the parents may have changed considerably; the child too will have grown and matured and may be quite different from the child left behind many months before.

Any of these factors can make the transition period for the child very difficult and affect both academic achievement and classroom behavior.

Unfortunately in our study, demographic data about the pupils' past histories were not collected. Therefore we cannot ascertain which characteristics are important in determining whether a special-class placement is recommended. Some of these factors may be the particular country involved, and the distance of its language from standard Canadian English, but there may be important differences within countries as well. No doubt social class is an important variable, as is the type and location (urban or rural) of the school attended in the West Indies.

What to Do?

Many children from the West Indies will have some difficulties coping with regular classroom life. Nevertheless, IQ testing and subsequent placement in special education programs is not the answer. The label 'slower learner' frequently becomes a self-fulfilling prophecy. Opportunity classes tend to present a reduced curriculum, so that it becomes increasingly difficult for the child to catch up to peers; special-class placement tends to be, *de facto*, a permanent placement.

For teachers who encounter West Indian children with school difficulties, a more appropriate method would be a very careful assessment of achievement—positive abilities and not just weaknesses—followed by a carefully planned remedial program in basic skill areas. Although standardized achievement tests could be used for this purpose, it must be kept in mind that these too will provide at best a *minimal* estimate of the child's learning.

For school boards with large numbers of children who speak dialects of English, it may be advisable to consider extra help with learning Canadian English, perhaps on an itinerant or withdrawal-from-class basis. In addition, special full-time academic booster programs could be devised to enable the children to make the transition to the Canadian curriculum.

Finally, for diagnosticians and psychometrists, it should be emphasized that we must not confuse intelligence with test scores. While there may well be limits to intellectual development in each one of us, there is no adequate means of assessing this. Intelligence tests do not measure potential; they measure acquired skills. We must not infer potential capabilities from a set of scores without considering the influences of various environments on those test scores.

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In a Class of Its Own

Liz Guccione
Shawnee Secondary School, Windsor

(Reprinted from the September 1975 issue of *Windsor This Month* magazine)

The first day of my new job as Community School Leader at Shawnee Secondary School began pleasantly enough with a special luncheon prepared by the students themselves. Gradually, however, from the conversations around me I began to realize that this was no ordinary school. Why, I had been placed in a vocational school! Me! In a vocational school!

And I knew all about vocational schools. Hadn't I graduated from Central High, toughest school in my hometown [Madison, Wisconsin], located in the city's core area and drawing its students from the families of the poor, black or second-generation immigrants? Central High was tough enough all right, but even tougher was Central Tech, the city's only vocational school. Tech occupied the back half of our high school, with its own entrance and completely separate facilities. We didn't have anything to do with the vocational students, never saw them in fact, but somehow we knew that they were rough and tough and on their way to reform schools, every one of them.

As I finished my lunch, an image came back to me from over the years—almost twenty years in fact. It was one of those vivid memories which is so sharply etched in the mind that small details, scents, and the exact weather remain clear. On one of the first fine days of real summer weather, a friend and I were walking around the school during the lunch hour when we heard shouting that seemed to be directed at us. Leaning out of one of the upstairs windows of Central Tech was a boy—he seemed years older than us—with long black greased-back hair and a torn white T-shirt.

He was hanging on by one hand and yelling something. Later, we told our friends that he was screaming obscenities, and as we ran to the safety of our school grounds, he appeared to throw something at us. We thought it might have been a half-eaten apple, although rumours around school were that, at times, pieces of wood and even wrenches had been thrown from the windows of old Tech.

At this point, four months after my initiation into Shawnee Secondary School, it's astonishing to recall how quickly my

fearful image of the vocational school disappeared. Right after that fateful luncheon, I was given a tour of the school by one of the teachers. As we approached our first group of students, I was surprised not to detect any of the usual notes of hostility, fear, or even contempt, which I remembered that we had once directed toward our high school teachers. These students were genuinely glad to see their teacher, relaxed teasing remarks were exchanged on both sides, and several students even greeted me, a stranger, in an open, yet polite manner. As the weeks went by I began to take for granted the cooperative, friendly atmosphere which seemed to exist between staff and students at Shawnee, and to become a part of it myself. And yet I never ceased to wonder what pedagogical magic had transformed the caged jungle of old Central Tech into the apparent success of this modern vocational school.

It is a success, of course, tempered by the problems that have always been part and parcel of educating adolescents. Principal Nelson McKelvie concedes, in fact, that a vocational school may well 'have more problems than a regular school because of the nature of our program. We're helping students who have been having difficulties in school for a long time for one reason or another.'

The difficulties and reasons can be purely academic—the student may simply not be capable of academic achievement. On the other hand, the student may be sent to a vocational school because he or she is a 'bad actor,' a discipline problem. He may often, it is true, be a discipline problem mainly because his failing academic work brings him only frustration, and creating a disturbance is his only way of attracting attention.

Attendance problems are probably the biggest single headache, according to Shawnee Vice-Principal Maurice LaMarre, who handles them every day. Some kids who come to Shawnee from eighth grade may have already been attendance problems for many years. In some cases, they may have been failing in their work and are coming to a vocational school in the first place simply through having missed too many days of school.

Students in secondary schools throughout the city are undoubtedly beset in one way or another by the same kinds of problems which affect kids in vocational schools, problems which in turn affect academic performance: home conditions, getting in with the wrong crowd, broken families, or the age-old pains of travelling through adolescence. But there is one problem that students at regular secondary schools do not share with their counterparts at vocational schools. That problem, according to Vice-Principal LaMarre, 'is the stigma that society still attaches to kids who are non-academic. I'm afraid that, whereas money and family background were once the status symbols of society, education now is. Thus, you have to overcome this problem right from the first—some of the kids are coming to Shawnee very reluctantly.'

The problem of 'image,' of the outsider's impression of what a vocational school is really like, dates back to their very beginnings in the early '60s. Bob Keech, teacher and counselor at Shawnee, remembers when Mason and Monarch (then King George) opened up in 1963:

'We really had a tough time with image right from the first, because kids were suddenly being segregated and sent to a special school. The bus drivers used to let the kids off in front and say, "Okay, ding-dongs, here's the school."

'Even today our main problem is image. The problem begins in eighth grade when the two or three non-achievers out of every class are told that, because of their performance, they'll be going to a vocational school; and the rest of the kids start saying "That's a dummy school! Only dummies go there!" '

It's hard for a teenager to overcome the teasing of friends and neighbours about going to a 'dummy school.' But often it's even more difficult for the parents to accept the fact that their child is not going to travel the route that they had planned long ago: to go to a regular secondary school, then on to university, and then onward to the professions, to become a doctor or a lawyer. 'So other parents feel that their success as a parent is judged according to the academic success of their kids,' LaMarre suggests. 'And that's wrong. It shouldn't be that way, but it is. I'm afraid we use our kids as status symbols.'

One placement officer told me the sad story of one father—a successful businessman—so dead-set against his daughter going to a vocational school that he preferred that she drop out. Against her own wishes, the girl is now hanging around Windsor looking for work.

Part of counselor Bob Keech's job is meeting new parent groups, and what he tells them is always the same:

'You've got to get yourself out of the way. You have to ask yourself "What's best for my kid?" not "What's best for me?" Here the kid is going to achieve something, become a better person. *He's going to feel better about himself*. He's going to achieve if his self-image improves.'

For the outsider's image of the vocational school (my image four months ago) as a 'dummy school' or as a tough school is not the most difficult image that the new vocational student must overcome. Even more difficult to combat is the student's own poor image of himself—as a student, a teenager, and a member of society. It is an image often gained through eight frustrating and failing years in elementary school. 'It's got to be hell to go to school every day and be picked on,' says Bob Keech, 'not only by the teachers, but by the other kids, too, because you can't do the work. Try living on a daily basis with everyone yelling at you, telling you you're not achieving, and proving it to you every forty minutes.'

How does the modern vocational school succeed in changing this image the student has of himself, and at the same time succeed in changing him into a productive member of society? First, it's important to remember that they don't always succeed. 'We don't win them all,' Maurice LaMarre admits. 'There are kids who drop out, who were terrible when they came in and are equally as terrible when they leave.'

When the vocational school does succeed, it can be due to many reasons. For one thing, all the slow learners, the non-achievers and the 'bad actors' are now placed in the same classes. 'Now no one in the class understands terms like "bare predicate" and "bare subject,"' says Keech, 'and there's none of that laughing at you anymore when you stand up to read.

'Because everyone in the class reads the same as them, they begin to progress. I've seen kids progress from a grade 3 reading level in our basic grade 9 program to reading at 12+ by the time they leave us.

'They don't have to act out anymore to get attention, and they begin to work together as any group of normal kids. They suddenly start to see "Hell, I *can* do this stuff."'

An ex-Shawnee teacher puts it another way:

'The most important thing is that, for the first time, an intolerable pressure has been lifted, a pressure to accomplish things of which the student is just not capable. And he may suddenly find out for the first time in his life that he is a worthwhile human being.'

For the first time, the threat of non-achievement has been removed, and, as Keech puts it: 'The kids get a chance to grow. Kids that grow, learn.'

As well, kids who hated school before may like vocational school because of its emphasis on technical or practical work. Fifty per cent of the student's time is spent in vocational shops. Shawnee is a new school, less than five years old, and the shops *are* beautiful. Students can choose from some 20-odd shops, among them: auto servicing, electricity, horticulture, sheet metal, home management, and woodworking. The painting and decorating shop, for example, gives an idea of the comprehensiveness of the technical courses and also gives some idea of the opportunities for learning, for experimentation, and for the overall growth which such practical experience offers to the vocational student.

Part of this shop is divided into small open-sided rooms, the walls, ceilings and floors of which may be painted, papered, stenciled, or even decorated with murals done by the students. Out of these courses come many products which are sold at the annual school fair to an appreciative community: baked goods from the cooking classes, handicrafts from the sewing and art classes, and a greenhouse full of lovely flowers and plants which are sold at the end of the school year in a neighbourhood shopping spree which can only be compared to a fire sale at Macy's.

The key phrase at Shawnee is 'accentuate the positive.' Ignore the negative, often even when a student acts out in class in a disturbing way. 'Discipline here has to have an individual approach,' says Bob Keech.

'The reason why we've been successful with some of our really bad kids is that we've just learned to tolerate them. They'll push you and they'll push you and they'll push you, and they don't break you. And when they don't break you, they start to think, "Well, what the hell, I might as well behave, I'm not going to get any attention this way."'

The vocational school of today is a new venture in education. As such, it is still being eyed askance by some, who continue to compare its precepts to the more traditional methods of teaching, some of them centuries old. 'There are people who will argue that we're segregating students when vocational schools are set up as separate units,' says Shawnee Principal Nelson McKelvie. 'But when they used to be in a regular secondary school, they were just as segregated, with all the left-over subjects and the left-over activities. This way our Student Council President goes to meetings with Student Council Presidents from other schools; and if he or she were in a regular school, they would never have participated. Most of our basketball team wouldn't have made the team in a regular high school. There are unlimited possibilities for developing leadership qualities in a vocational school that most of our students wouldn't have in a regular school.'

My own brief experience at Shawnee brought home to me the truth of these words, in ways both large and small. I remember, for instance, mumbling to myself one morning about ashtrays: There weren't any ashtrays for a meeting about to be held with some neighbourhood women! (Coffee and ashtrays are the only elements absolutely essential to a successful morning meet for women.) Out of the blue appeared a student who had overheard my mumblings, had found the ashtrays in another part of the school, and was at that moment putting them in their appropriate spots throughout the seminar room. Needless to say, the meeting was a success, due in no small part to the initiative of a student who, in a small way, was showing leadership qualities.

These positive experiences were repeated more than once during the spring, and even more often in the neighbourhood around the school. Here the 'positive feedback' came from parents, many of whom had at first dreaded sending their child to a vocational school. It was hearing their comments on the changes wrought in their children which first made me think there might be a 'story' worth writing about vocational schools.

The following statements were typical:

'Before she went to Shawnee, my daughter didn't have enough self-confidence to go out of the house on weekends. Now she's applying for a summer job up North. That's something she would never have done before.' 'I really think going to a vocational school was what made my boy stop stuttering.' 'Going to Shawnee was the best thing that ever happened to my daughter.' 'When my uncle, who's a policeman, found out my son was going to attend a vocational school, he warned me that the bad crowd there would ruin him. Now he's the first to tell everyone what good things a school like that can do for a kid.'

Character development, a sense of pride, and a much improved self-image are the goals by which vocational school teachers must judge their successes with students. As Nelson McKelvie suggests:

'I don't think you could teach here if your main concern weren't the students. Because you're certainly not going to get your thrills from looking at a beautiful notebook or from hearing a deep, intelligent answer to a question in an English class. If that's what you want, you won't be very happy here.'

The teacher at a vocational school must be, as they say in the field, student-oriented rather than subject-oriented. They must be content with success in the long run rather than in the short run. Their satisfaction may come from seeing their former students settle into good jobs and good marriages, and even from seeing a few students who were once judged hopeless failures go on to succeed at university.

Basically, however, 'kids from vocational schools go out into the world with the feeling "Hey, I *can* do this!"' says Vice-Principal LaMarre, 'whereas they left elementary school with feelings of complete frustration.' Much of what they learn is going to help them in their everyday life —to paint, to garden, to fix their cars, to cook and to clean. 'What we hope to graduate,' Bob Keech adds, 'is good mothers, good husbands, good employees, and good neighbours. *Not* necessarily good students.'

I ended my interview with Nelson McKelvie, Principal of Shawnee, with the question that I thought would form the crux of this article, the question which had begun all my wondering: What had wrought this miraculous change in vocational schools from the days when I attended Central High? Why was Shawnee Secondary School so different from my expectations, so different from my memories of old Central Tech? His answer has since made me wonder even more:

'I would think that Shawnee is very much the same as Central Tech was then. It's an image you had because you really didn't know . . . You didn't know and therefore you were afraid . . .'

Wondering about that answer has made my thoughts travel back again to that day almost twenty years ago, and to that boy leaning out the window of Central Tech and yelling at us. Was he really screaming obscenities? Did he really throw something at us? Or were our fears playing tricks with our minds—and with our memories since? Tech was an all-boys school in those days . . . perhaps he was just shouting hello to some unknown girls on the first fine day of summer.

OF MANY THINGS

Food and Learning Disabilities

In his book *Why Your Child Is Hyperactive* (published by Random House), Dr. B. F. Feingold, Chief Emeritus of the Kaiser Permanente Medical Center in San Francisco, discusses how hyperactivity and learning disabilities are linked to the ingestion of artificial food colors and flavors.

Further to this matter, Dr. Feingold points out in a recent letter that the Center for Science in the Public Interest has designated April 8, 1976, as Food Day in the United States—a day of national action with regard to the food crisis. The CSPI hopes that teachers will take advantage of this opportunity to inform students and parents about the problem of hyperactivity and learning disabilities.

While the day itself has no direct implications for Canadian schools, proper diet is a matter of worldwide concern, and the proposed activities (listed below) will be of interest to many Canadian educators, perhaps to the point of stimulating them to conduct similar projects in their own communities.

Food Day Activities

1. Organize a teach-in, which might include workshops, lectures, debates, and films addressing the problem of diet-related diseases.
2. Head a campaign to replace junk foods in school vending machines with wholesome alternatives, such as nuts, yogurt, fruits, and milk. A coalition comprising Home and School members, community associations, the dental association, and the student government can add strength and credibility to this campaign.
3. Work gardening into lesson plans. Children can grow vegetables, flowers, and beans on idle school or city land, feel a sense of pride in their efforts, and improve their eating habits as well.
4. Organize a field trip to a farmers' market, food co-op, and supermarket to compare different methods of obtaining food. Students can survey the kinds of foods available at each place, noting the foods they like best.

For more information about organizing Food Day activities, write to Food Day, Washington, D.C. 20036.

Joseph Dugas Elementary School

Canadian history records no more poignant episode than the expulsion of the Acadians in the 1750s. Perhaps few people outside the Maritimes remember that not all of them accepted the finality of their departure, but memory lives long in the peaceful land that surrounds the Basin of Minas. In the autumn of 1975, the courage of those who returned was honored when a consolidated elementary school at Church Point, Nova Scotia, was named for Joseph Dugas, the first settler to bring his family back to the French shore.

Grade 5 Recalls the Vikings

Allen R. Wells
Lambton County Board of Education

'From the Vikings, O Lord deliver us' was an ancient Western European prayer whose urgency stirred briefly to life when Brian Morrice, Woodside Public School, Forest, sought to bring a remote, barbaric period of history into his grade 5 classroom. His journey into the past was an outstanding feature of the school's open house.

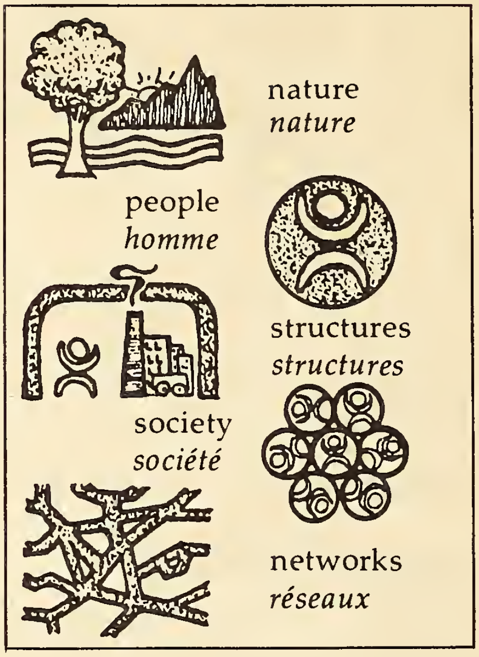
A Viking ship dominated the darkened room, its high carved prow and billowing sail present only in the power of suggestion and the visitor's imagination. Uncertain, flickering light from an electric log heightened the illusion that the long, weathered boards bearing the ubiquitous warrior's shields were indeed a Viking ship. But the runic characters of the Norse, carefully inscribed on the shields, spelled out names—not of long-dead warriors but of Mr. Morrice's students. Designed as it was to make the Vikings live for the class, the exercise required each child to make his own shield in authentic Viking design and attach it to the ship's side as a token of his participation in the voyage.

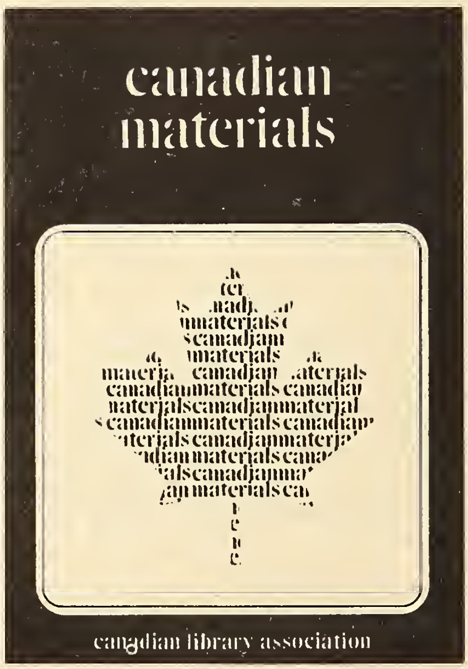
For the young students, their return to the present came quickly, and with it the realization that descendants of these ancient people are a part of present-day Canada. In them the proud Viking spirit of adventure and camaraderie persists. But the people of Forest—avid hockey supporters, who publicize their town as the 'home of the Silver Stick championships'—see that spirit at its best on the hockey rink. And so it was that the Viking display included a wall hung with the flags of modern Scandinavia and photographs of such hockey idols as Salming and Hammarstrom.

Youth Dimensions for Habitat: United Nations Conference on Human Settlements

Human settlements—the amalgam of people, homes, lifestyles, personal values, cultures, and professional and support services that make up the communities in which we live—will come under study at a United Nations conference in Vancouver in June 1976. The conference will attempt to find solutions to problems that debase the quality of life throughout the world. Its success may well depend upon the degree of caring and concern generated among participants.

The Youth Dimension Project, conducted by *All About Us*, is working with all levels of government to bring the conference to the attention of Canadian educators and students. In a package of material distributed to schools throughout Canada, Youth Dimension states that its purpose is to find ways in which teachers and students can relate their concern about the environment, ecology, and quality of life to appropriate areas of the curriculum and to projects in their own communities. The organization also appeals for cooperation in its attempt to identify educators involved in human settlement problems, to arrange for an exchange of ideas and experiences, and to determine what resources are most helpful to people engaged in this work.





Canadian Materials

An annotated critical bibliography for Canadian schools and libraries, *Canadian Materials* is published by the Canadian Library Association and the Canadian School Library Association. It provides an evaluative review of current materials, in all media forms, for use in public and secondary schools. The publication comes in response to the felt need of teachers and librarians for a current, comprehensive bibliography of print and nonprint media. Volumes 1 and 2 were produced by volunteer editors and compilers; volume 3, consisting of two issues—No. 1 (September 1975) and No. 2 (available shortly)—saw *Canadian Materials* become a formal publication with a regular editor. Beginning with volume 4 (1976), it will be published three times a year.

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Suggestions for the Primary Teacher: A Science Activity File

William S. O'Bruba
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A variety of simple activities designed to involve children in science provide a useful resource file for the primary teacher. Some basic ideas follow. Use them as you see fit, and adapt and enlarge them to suit your situation.

The Senses

Discuss with the class what the senses are and ask if anyone can name them. If the children give a partial answer, help them identify the remainder. Stress the function of the senses by introducing activities that focus on sight, hearing, taste, touch, and smell.

Sight. Play 'Find the Object.' An object that is visually attractive adds pleasure to the search—a colorful ball, a bright box, an appealing book. Show it to the children and then have them cover their eyes while you hide it. Set a time limit on the search. Reward the child who finds the object by letting him hide it. Continue the activity until the concept of sight—or seeing—is well established.

Hearing. Conduct a 'whisper chain.' Arrange the children in a circle. Designate a starting point and whisper a message to the first child, asking him to repeat it to his neighbor with the instruction 'Pass it on.' When the message has gone around the circle, have the last child repeat it aloud. Compare his version with the original. Was it correct? If not, try to find out where the breakdown occurred and use your findings to emphasize the need to listen carefully in order to hear and understand.

Taste, Touch, and Smell. You could plan separate activities for each of these senses but it is highly unlikely that they would equal the impact of a multi-sensory experience. Think, for example, of the almost unlimited opportunities for tasting, touching, and smelling afforded by a visit to the circus. Try it, and have the children record their impressions in words or pictures. Of course, their reactions will vary, but a heightened perception of taste, touch, and smell will be common to all. If a trip to the circus is out of the question, visit a zoo, a carnival, a large railway station, or any setting rich in sensory experiences.

Weather

Weather is a complicated subject, but some aspects of it lend themselves to a simple approach that is appealing to children.

Clouds. On a warm summer day, take the children outside and have them lie on their backs on the grass and watch the clouds. Encourage them to talk about what they see—the shape, type, and movement of the clouds—and be prepared to answer their questions.

Storms. Discuss storms and how they affect people. Ask the children how they feel during thunderstorms. Outline the safety precautions they should take and the dangers they should watch for during electrical and other severe storms.

Temperature. Lay two thermometers on a window ledge. Cover each of them with a piece of paper—one white and one black, but identical in thickness and texture. Have the children check the thermometers at intervals through the day, compare the readings, and discuss why they differ.

Weather Reports. Discuss the value of weather reports and why people listen to them. In a convenient place in the classroom set up the shell of an old television set, or a facsimile made from a box, and have the children take turns giving daily weather reports.

Weather-Related Activities. Have the children collect pictures of things people do on sunny, rainy, and snowy days. Display them in a 'weather collage.'

Rain Detective. How can you tell that it rained during the night? Have the children make a list of clues.

Snow. Take the children outside on snowy days. Have them observe the color, texture, and handling qualities of the snow and how they vary from one day to another. Try building snowmen and see if the children can tell you why it is easy sometimes and almost impossible at other times.

Seasons

Discuss the seasons and the seasonal changes in trees, plants, and animals. Have the children collect pictures that relate to the seasons and show these changes. For easy comparison, arrange them on a bulletin board under the headings 'spring,' 'summer,' 'autumn,' and 'winter.'

Seasonal Field Trips. To help the children understand that the seasons represent nature's cycle of growth, fruition, harvest, and rest, take them on a field trip—preferably to the same wooded area—in spring, summer, autumn, and winter. On each trip have them observe conditions, make notes, and (if possible) take pictures. In this way, they can make valid comparisons that show clearly the scope of change throughout the year.

Pioneer Winters. Talk to the class about how the pioneers prepared for winter. Emphasize that only through adequate preparation could they have sufficient food, heat, light, and warm clothing to see them through until spring. If your area has a pioneer village or museum, take the class to visit it. When the children have acquired sufficient knowledge, have them write and present a skit that shows a pioneer family preparing for winter. To round out their understanding of pioneer life, follow similar activities focused on spring, summer, and autumn.

Plant Growth. Have the class plant a variety of seeds in the normal spring planting season. Deprive some of the seeds of one or more of the necessities for growth. What happens to the deprived seeds? Which seeds produce healthy plants?

Earth Science

From the many aspects of earth science, choose a few that will interest and inform the children.

Earthworm Experiment. Put soil and earthworms in a gallon jar and have the children examine it carefully. Tape black paper around the jar and one day later have the children look at it again to see what changes have taken place.

'Fossil Cast' Making. Give a class demonstration of making 'fossil casts' by placing objects in plaster of paris poured into milk cartons or tin pie plates. Then have the children try making 'fossils.'

Rock Figures. Have the children make imaginative figures using rocks, glue, and paint. When they are completed, have a class display. Discuss their figures with the children and then let them take them home.

Rock Scale. Give the class a variety of rock samples and ask the children to scratch each of them with a fingernail, a coin, and a nail file. Compare the results. Have the children label the rocks and arrange them on an ascending scale from softest to hardest.

Sandstone Experiment. Soak a piece of sandstone in water until it is saturated. Remove it and put it in an aluminum pan

in the freezer overnight. Note what happens. Return it to the freezer for a week. Again, what happens? Have the class observe the sandstone carefully at the various stages.

Machines
Children frequently make useful and interesting discoveries through exposure to machines. Try to create classroom opportunities for such learning.

Machine Recognition. Make a list of the machines in your classroom and in other parts of the school. Have the children find a picture of each of them and paste it in the appropriate spot on your list.

Comparisons. Conduct class comparisons of what is accomplished with a broom and a vacuum cleaner, with a spoon and a beater, with a razor and an electric shaver. Have the children list the similarities and differences they observe. See if they can suggest ways of expanding this experiment to provide further learning.

Nature and Use of Simple Equipment. Collect a variety of unserviceable small appliances, clocks, and tools. Set aside a corner of the room in which the children can manipulate and dismantle them, see how they should work, and try to discover what is wrong with them. Encourage the children to share their findings.

Magnets
Discuss briefly what magnets are and how they attract metal objects. To test the children's understanding of their action, play a 'magnet' version of 'I Spy.' If, at any time, a child selects an object that a magnet will not attract, his turn will go to the child who discovered his error.

Magnets and Paper Clips. Ask a student to lower a horseshoe magnet into a bag containing paper clips, remove it, and hold it up for the class to see. Have him repeat the procedure with a bar magnet. Call the children's attention to where most of the paper clips cling. What do these experiments tell about the poles of a magnet?

Strength of Magnets. Do magnets differ in strength? A simple experiment gives the answer. Place similar metal objects in a row. Give each child a magnet and have him experiment to see how close the magnet has to be to the object in order to draw it. As the experiment proceeds, it will become obvious that some magnets move objects from much farther than others. The varying distances covered by the objects indicate the differing strengths of the magnets.

Covered Magnets. Do magnets work when covered? Does the type of covering affect their action? Provide the children with a variety of materials and have them conduct experiments to find the answers. Try using paper, plastic, and foil and compare the results.

How Poles Attract and Repel. Fasten bar magnets to a number of toy cars with the north pole projecting at the front and the south pole at the rear in each case. As the children play with the cars, have them observe carefully what happens. They will discover that when the front of one car (north pole) comes close to the rear of another (south pole) a collision occurs. But when the rear of one car comes close to the rear of another (both south poles), or when the front of one car comes close to the front of another (both north poles), the cars move apart. It should now be obvious to the children that opposite poles attract and similar poles repel.

Profile of a Project—Principal Professional Development

Barbara Viehbeck
Lakehead District RCSS Board

In recent years, professional development has been given high priority by Lakehead District Catholic schools. From the beginning, it focused on curriculum as well as on teachers. But in March 1975, it was expanded to include yet another area—the role of the principal.

The decision to involve principals came from within their own ranks. Of the many factors that contributed to it, one of the most compelling was the felt need to identify and promote the skills, competencies, and strategies required of a Christian education leader in school and community. Others were the need for a common understanding of the principal's role in general terms and as it relates to the goals of the system, and the danger of stagnation that accompanies failure to pursue continuing in-service training and self-examination.

The principals were active, too, in program planning; six of them worked on the planning committee along with the learning materials coordinator, the professional development administrator, and the director of education. Setting the duration of the study at not less than one and not more than two years, the committee designed a program of lectures, workshops, discussion groups, seminars, prescribed reading, and assignments, requiring in all an average of ten hours a month (four 2½-hour units) equally divided between board and personal time and exclusive of reading time. The cooperative commitment of board and staff with regard to time is indicative of the study's popularity with all concerned.

In addition to planning, the committee accepted responsibility for directing the study and committed itself to weekly meetings to review work done, develop topics and objectives, and identify appropriate resource persons within and outside the system. Provision of resource material became the responsibility of the learning materials coordinator, and details of organization and operation fell to the lot of the professional development coordinator.

The study got under way in September 1975 with an examination of how the principal perceives his role in terms of personal philosophy, beliefs, values, and attributes, and how external forces and pressures affect him. Out of this came a review of the skills and ability he needs to fill his role effectively. Because of the personal nature of the approach, participants were deeply involved from the outset. Principals, coordinators, and senior staff members are required to participate throughout the study, and other staff members will be invited to attend specific sessions at the discretion of the planning committee.

To date the project has gone well, and the participants are already deriving benefit from it. This promising beginning tends to confirm our belief that it will eventually be of benefit to the entire community.

Canadian Pacific

Incorporated as a railway company in 1881, Canadian Pacific has expanded steadily until today its operation involves many areas of the economy. 'Canada's Great Railway Adventure,' a kit of materials produced by the company, includes historical and statistical information, a review of present-day operations, a look at some specialized equipment, and a bibliography. The various items are reviewed below. Please address requests to:

Public Relations and
Advertising
Canadian Pacific
Room 1009
69 Yonge Street
Toronto, Ontario M5E 1K3.

Contents of Kit

Canadian Pacific
A summary of the diverse assets of Canadian Pacific reveals that, in addition to providing transportation by land, sea, and air, and operating hotels, the company is active in telecommunications, investments, and engineering and economic consultant services.
A concise, highly informative review of the overall operation of Canadian Pacific.

CP Rail Chronology
Significant dates in the company's history are the basis of a point-by-point record of CP Rail's development from its incorporation to the present.

CP Rail Facts and Figures
Comprehensive statistical information about CP Rail facilities, equipment, and passenger and freight loads.

CP Rail Bibliography
A basic book list for students who want to learn more about the origin, construction, and development of CP Rail.

Historical Chart
Colorful sketch maps of four stages in the development of the Canadian railway system are presented on a display chart. The maps show the rail situation as it was in 1867, 1871, and 1886, and as it is today. In addition to tracing the development of the railway, they show how internal boundaries were gradually changed to create our present provinces and territories.

Freight Cars and Commodities
Twelve freight cars, representative of the wide range of specialized equipment used by CP Rail, are pictured in color on a folder enclosing individual sheets that outline the specifications and use of each of them. The text is centered so that, where appropriate, students may paste cut-out pictures of the freight cars at the top of the appropriate sheet and, at the bottom, draw pictures of the articles they transport.

Film
Please address requests for the following Canadian Pacific film to:

Modern Talking Picture Services
1875 Leslie Street
Don Mills, Ontario M3B 2M6.
Telephone: (416) 444-7347

Multiplicity (16mm, color, 28 minutes)
An award-winning corporate film that shows how Canadian Pacific serves Canadians by moving people, goods, and ideas across Canada and throughout the world. *Multiplicity* is not suitable for younger students and is available only to secondary schools (not junior high schools). It is distributed on the usual basis, with the borrower paying only the return postage. Please order well in advance and include an alternative date of showing.

For readers in other areas, *Multiplicity* is also available from the following:

Modern Talking Picture Service
1055 Beaver Hall Hill
Montreal, Quebec H2Z 1S5.

Modern Talking Picture Service
c/o Associated Audio-Visuals
Ltd.
1590 West Fourth Avenue
Vancouver, B.C.

Profile of a School/34

St. George's School, Long Sault

GOD DON'T MAKE NO JUNK

St. George's School was built during the construction of the St. Lawrence Seaway as part of the relocation plan necessary because of the inundation of existing villages such as Mille Roches and Moulinette. The original building of three classrooms was later expanded to five classrooms and housed students from kindergarten to grade 8.

Since that time, the primary section of the school has become incorporated with Our Lady of Good Counsel School in Ingleside, and St. George's is now a junior/intermediate school drawing students from both Ingleside and Long Sault.

The school presently consists of students from grades 5 to 8 and is fortunate enough to have a Special Services class to help with the remedial needs of the students.

The community spirit of cooperation within the school is its most valuable asset. Because of the smallness of the school, it is possible to foster a warm relationship among staff, students, and parents that is in true keeping with the philosophy of individual development.

The school operates on a six-day cycle, with students rotating to a different teacher every day for a full afternoon. These afternoon sessions consist of classes in social studies, art, music, science, physical education, and French.

Because of its ideal location, extensive use is being made of the parkland areas nearby. Such sites as Upper Canada Village, the St. Lawrence parks, the Migratory Bird Sanctuary, and a multiplicity of industries provide excellent opportunities for out-of-school education.

We feel that the school is constantly evolving and providing more and better learning opportunities to the students.

Ernest J. Seguin, Principal

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